Labour market and unemployment in Sudan

Working Paper Series

#2011-007

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UNU-MERIT Working Papers
ISSN 1871-9872

Maastricht Economic and social Research and training centre on Innovation and Technology, UNU-MERIT

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By Dr. Samia Satti Osman Mohamed Nour [1]

(January 2011)

Abstract

This paper examines the structure of labour market and unemployment in Sudan. One advantage of our analysis in this paper is that we explain several stylized facts on labour market using new secondary data on population, employment and unemployment based on Sudan Central Bureau of Statistics (2010) the Fifth Sudan Population and Housing Census (2008). An interesting element in our analysis is that we explain several stylized facts on the relation between structure of labour market and demographic structure, labour force, participation rates, economic activities, low skill level and high unemployment rate defined by gender, mode of living and main geographic areas in Sudan. Different from the findings in the empirical literature in support of Phillips curve on the negative correlation between inflation and unemployment rates, we find positive and significant correlation between unemployment and inflation rates in Sudan during the period (2000-2008). Moreover, different from the analysis in the Sudanese literature we present a more comprehensive analysis of four stylized facts on unemployment problem in Sudan, these include distinction of several types of unemployment; interpretation of unemployment problem from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; analysis of high incidence of unemployment among youth population and high mismatch between educational qualifications –supply- and labour market requirements- demand. The major policy implication from our findings indicate that since unemployment problem is related to these endogenous and exogenous causes, therefore, policies intervention for reducing unemployment should deal with these endogenous and exogenous causes. Notably, improvement of job creation and quality of educational policies and consistency between educational qualifications (output) and labour market requirements. Another major policy implication from our result on the significant positive correlation between increase in unemployment and inflation rates (2000-2008), implies that macroeconomic policies aimed at or targeting reducing inflation rates would also contribute to reduce unemployment rates in Sudan.

Keywords: Labour market, employment, unemployment, Sudan.

JEL classification: **E24, J10, J11, J20, J21, J23, J24, J64**

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1. Introduction

Economists have long recognized the essential role of full employment and equity for achieving sustainability and improvement of economic growth in any society. Both the classical and new growth theories and empirical literature indicate that full employment and equilibrium in the labour market is an objective that every economy aims to fulfill. Failure to achieve full employment and the incidence of unemployment problem and their serious implications on causing mismatch between supply of and demand for labour could have several macroeconomic effects and hindering the process of economic growth and development. Therefore, every country aims to achieve full employment to avoid the negative consequences of unemployment.

Different schools of thoughts use different definitions, conceptual frameworks and interpretations of unemployment problem. Theoretical and empirical literature presents a comprehensive discussion of the causes and consequences of unemployment problem from both supply and demand perspectives. The Classical school focuses on the supply side and interprets the unemployment problem due to excess supply of labour. For the New Classical school the unemployment problem can be attributed to the rigidity in wages. The Keynesian school focuses on the demand side and attributes the unemployment problem due to deficient demand, involuntary (compulsory) unemployment. According to the International Labour Organization (ILO) unemployment refers to all people who are not currently working, not employed and are currently looking for jobs (at the available wage rate) in the market, but unable to find a suitable job, at the prevalent wage rate. The rate of unemployment refers to the share of the labour force that is without work but available for and seeking employment. The definition of ILO explained unemployment mainly due to the surplus supply of labour.

More recently, the long run economic growth and sustainable development strategy in the Sudan aims to achieve and sustain peace and to shift to political and economic stabilization, balanced development strategies, economic diversification, build of adequate human resources, build institutional reform and enhance self-reliance on domestic capital and workers. In addition, overcoming the strategic problems and challenges confronting economic development and thereby achieving economic growth and sustainable development in the Sudan depends on the strategies of alleviation of poverty and reducing unemployment and restructuring the labour market. In our opinion the success/fulfilment of the strategies of reducing unemployment and poverty problems are interrelated. In particular, confronting with the challenge of poverty alleviation depends on the creation or development of adequate and appropriate employment opportunities in the Sudan, notably, the creation of more permanent jobs implies more sufficient and sustainable income available for the poor and that will help to reduce the poverty rate.

Explaining the case of Sudan is both interesting and significant because of high and recent increasing unemployment rate in Sudan. Moreover, both the growing inflow of FDI and

the increased wealth from oil has encouraged migration to the Sudan. Consequently, migrant workers have increased in the labour market, particularly in the private sector that also probably affected the structure of labour market and contributed to the growing unemployment rate. In addition, the Sudan suffered from structural problems related to the lack of political stability, continuous conflict, regional disparities due to imbalanced development strategies, poverty and low skill level which has also affected the structure of labour market and contributed to high unemployment rate. Hence, the upskilling and creation of employment become imperative to overcome the strategic problems and challenges confronting economic development in Sudan.

Based on the above, this paper examines the structure of labour market and unemployment in Sudan, the aim of this paper is twofold: first, to present some stylized facts on the structure of labour market in Sudan and second to present some stylized facts to examine more extensively the unemployment problem confronting economic development in Sudan. An interesting element in our analysis is that we explain several stylized facts on the labour market, First we explain the relation between the structure of labour market and the demographic structure, participation rates and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problem in Sudan. We show that the differences in the structure and distribution of the total population defined by age, gender, mode of living and main geographic areas have several important implications in the structure of labour market, labour force, participation rates, economic activities, skill level, employment rates and unemployment rates. Moreover, different from the analysis in the Sudanese literature we present a more comprehensive analysis of four stylized facts on unemployment problem in Sudan, these include distinction of several types of unemployment; interpretation of unemployment problem from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; analysis of high incidence of unemployment among youth population and high mismatch between educational qualifications – supply- and labour market requirements- demand. Moreover, one advantage of our analysis in this paper is that we explain these stylized facts on labour market and unemployment using new secondary data on population, employment and unemployment based on Sudan Central Bureau of Statistics (2010) the Fifth Sudan Population and Housing Census (2008). One limitation of our analysis in this paper is that the use of figures on registration and employment to refer to supply of and demand for youth and university graduates labour respectively may be somewhat inaccurate and underestimate the actual figures on supply of and demand for university graduates, because not all youth and university graduates looking for jobs are registered for the federal public service recruitment board and also because figures on employment may include youth and university graduates unregistered for the federal public service recruitment board. Apart from this limitation, our analysis in this paper is interesting and useful to improve

understanding since we provide a more comprehensive investigation and discuss the unemployment problem from both endogenous and exogenous perspectives. In addition, our analysis is useful from policy perspective to address the relevant mechanisms and policy issues to reduce unemployment, highlight the role of both public and private labour market institutions and educational policies and the need for incentives, agreement and collaboration between public and private institutions in upgrading skill and reducing unemployment problem in Sudan.

The rest of this paper is organized in the following way. Section 2 explains the general socioeconomic characteristics of Sudan, Section 3 discusses the structure of labour market and unemployment in Sudan and Section 4 concludes.

2. Economic characteristics and strategic problems for development in the Sudan

Before assessing the structure of labour market and unemployment problem in the Sudan it is useful to start by explaining the general political context and socio-economic characteristics of the Sudan. Next, we show the structural problems related to the structure of labour market, unemployment and low skill level in the next section and we attempt to link these to general socio-economic characteristics of Sudan.

2. 1. Geo-political setting, political context and north-south conflict in the Sudan

Starting with the geographical location and features, geographically, Sudan is situated in northern (or northeastern) Africa, it is the largest country on the Africa continent and the Arab region and the tenth largest in the world in terms of area covering 2492360 square kilometers or about (967500 square miles) i.e. nearly one – tenth of the total area of Africa. Sudan has lengthy borders with nine countries and for its strategic location; Sudan seems as a bridge between Arab and Africa regions.[2] The principal physical feature of the Sudan is the river Nile and its tributaries. The world's longest river, the Nile, divides Sudan between east and west sides. The Nile system run through approximately 2.5 thousand miles from south to north, the Blue Nile River joins the White Nile River at Khartoum to form the river Nile. The Nile flood provides Sudan with vast alluvial agricultural lands and the most fertile region between the White Nile River and Blue Nile River. The climate of Sudan ranges from the equatorial in the extreme south to an arid desert in the north.[3]

As for the political context since independence in 1956 and over the past five decades Sudan was ruled by three civilian governments (1956-1958, 1964-1969 and 1985-1989) and three Military governments (1958-1964, 1969-1985, 1989-2005). Sudan suffered from political instability, as the short-lived three civilian governments were often removed and overthrown by

[2] Sudan has lengthy borders with nine countries, namely: it is bordered by Egypt to the north, Libya to the northwest, Eritrea and Ethiopia to the east, Kenya and Uganda to the south, Democratic Republic of Congo and Central African Republic to the southwest and Chad to the west, the Red Sea to the northeast separates Sudan from the Kingdom of Saudi Arabia

[3] See Sudan Central Bureau of Statistics Statistical Year Book (2008), “General Information” pp. XI-XII.

military governments. For instance, the first civilian government after independence (1956-1958) was overthrown in 1958 by the Abbud Military Government (1958-1964), the second elected civilian government (1964-1969) was overthrown in 1969 and by the Nimeiri Military Government (1969-1985) and once again the third elected civilian government (1985-1989) was overthrown in 1989 by Al Bashir Military Government (1989-2005). Since the signing and implementation of the Comprehensive Peace Agreement (CPA) in January 2005 the Sudan is ruled by the Government of National Unity (GNU) which represents a power-sharing government between the National Congress Party (NCP) of the north and Sudan People's Liberation Movement (SPLM) of the south. As for government and politics, the politics of Sudan takes place, in the framework of a federal presidential representative democratic republic, the judiciary is independent and obtained by the Constitutional Court and the legislative power is vested in both the government and in the two chambers, the National Assembly (lower) and the Council of States (upper), the bicameral National Legislature is the official Sudanese parliament consists of 500 appointed members.[4]

The record of the political context in Sudan is characterized by a long history of serious political instability, continuing civil wars and complex conflict between the north and the south that first occurred even before Sudan gained its independence and continued after gaining its independence in 1956. For instance, over the period (1955-2005), Sudan has suffered from instability and two civil wars between the north and the south. Sudan finally ended the second civil war by signing the Comprehensive Peace Agreement (CPA) [5] and by adopting a new constitution in 2005.[6] The implementation of the CPA implies several important agreed issues, which included the formation of the Government of National Unity (GNU) in 2005, which represents a power-sharing government between the National Congress Party (NCP) of the north and Sudan People's Liberation Movement (SPLM) of the south. Moreover, the implementation of the CPA implies several other important agreed issues, which included the establishment of an interim transitional period of autonomous rule for the South for six years (2005–2011) and it followed by the self-determination for the southern Sudan and a referendum in Southern Sudan to decide on unity or secession from the north (that was just held in January 2011). Now near the end of the Interim Period, both the north and south have seen significant benefits from the peace though significant political economy risks remain. While national income has increased dramatically, the post-conflict environment continues to be characterized by difficult political and security situations and internal and external tensions. Internally, the relations between north and south remain tense, the performance of Government of National Unity (GoNU) has often

[4] Sudan is divided into twenty-six states which in turn are subdivided into 87 districts; the ten states in Southern Sudan are subdivided into 84 counties. The states are: Al Jazirah, Al Qadarif, Blue Nile, Central Equatoria, East Equatoria, Jonglei, Kassala, Khartoum, Lakes, North Bahr al Ghazal, North Darfur, North Kurdufan, Northern, Red Sea, River Nile, Sennar, South Darfur, South Kurdufan, Unity, Upper Nile, Warab, West Bahr al Ghazal, West Darfur, West Equatoria and White Nile.

[5] The CPA was signed on January 9, 2005, ending conflict between the Government of Sudan and the Sudan People's Liberation Movement/Sudan People's Liberation (SPLM) Army.

constrained by and suffered from the inconsistency and disagreement due to the continuous dispute and conflict between the ruling NCP and the SPLM. Externally, Sudan remains at the center of intense international pressure over the civilian impact of continued conflict in the Darfur region of the country, which is so far unresolved. These issues are reminders that the political economy context in Sudan will remain complex and uncertain, even for a post-conflict country.[7] So far Sudan is still suffering from political instability due to escalation and continuation of conflict in the country. In our view this political instability may lead to serious implications in the short and long run economic growth and development in Sudan. Moreover, the unbalanced development in Sudan, with a large regional disparity remains a potential source for conflict and political instability. Furthermore, from institutional perspective, Sudan suffered from the lack of sound and systematic institutional setting and the lack of commitment to implementation of long run sustainable and balanced economic and development plans and strategies. In our view the interaction between these important endogenous political, economic and institutional factors most probably have not only been important for the interpretation of the root causes of the north-south conflict but most probably also important for the interpretation of the root causes of continued low standard of economic development in Sudan for a long time period. This implies that the interaction between these political, economic and institutional factors together have unfortunately continued to contribute to a low standard of economic development in Sudan as we explain below in the next section.

2. 2. General socio-economic characteristics of Sudan

As for the general socio-economic characteristics of the Sudan, Table 1 below explains the demographic structure and the major socio-economic characteristics for Sudan. Table 1 below shows the considerable diversity between Sudan, African and Arab countries and the world regions in terms of population, standard of economic development as measured by GDP per capita and human development index. Sudan generally has higher population number coupled with lower standard of economic development. The World Bank classification of economies puts Sudan among the lower medium-income economies. Moreover, the UNDP HDI shows that the average GDP per capita for Sudan falls within the world medium-income bracket and is, on average, lower than for those of the world and Arab countries. This also holds for other HDI components: average life expectancy, literacy rate and combined enrolment ratios. Moreover, according to UNDP indicators and estimates from International Monetary Fund's World Economic Outlook (IMF 2002), as in most other typically poor developing countries Sudan continued to suffer from widespread and high rates of poverty and unemployment.

[6] See: http://en.wikipedia.org/wiki/Sudan: Accessed in June 01st, 2010.
[7] See WB-DTIS, (2008): p.1.

Table 1- General socio-economic characteristics of the Sudan[8]

Country	Population [a b] (millions) (2007-2008)	GDP per capita (PPP[c] US$)	Human Development Index [a] (%)	Life Expectancy [a] (years)	Adult Literacy Rate [a] (% aged 15 and above)	Combined enrolment ratio [a] (%)
	2007	2007	2007	2007	1999-2007	2007
Sudan[b]	39.2	2086	0.531	57.9	60.9	39.9
Africa	638.6	2,729	0.547	53.9	63.3	55.9
Asia	3178.8	5,837	0.724	68.8	82.1	64.5
Europe	720.8	24,775	0.902	74.9	99.2	88.2
Latin America and the Caribbean	437.5	10,077	0.821	73.4	91.2	83.4
Northern America	282.7	..	0.952	79.2	96.5	..
Oceania	26.9	..	0.900	76.4	93.0	..
Arab States	229.3	8,202	0.719	68.5	71.2	66.2
GCC	23.1	30,415	0.868	74.0	86.8	77.0
Central and Eastern Europe and the CIS	468.1	12,185	0.821	69.7	97.6	79.5
CIS	280.9	10,487	0.802	67.0	99.4	81.1
East Asia and the Pacific	1658.5	5,733	0.770	72.2	92.7	69.3
Latin America and the Caribbean	437.5	10,077	0.821	73.4	91.2	83.4
South Asia	1200.0	2,905	0.612	64.1	64.2	58.0
Sub-Saharan Africa	483.1	2,031	0.514	51.5	62.9	53.5
OECD	1048.6	32,647	0.932	79.0	..	89.1
European Union (EU27)	471.6	29956	0.937	79	..	91
High human development	784.2	12,569	0.833	72.4	94.1	82.4
Medium human development	3388.5	3,963	0.686	66.9	80.0	63.3
Low human development	240.2	862	0.423	51.0	47.7	47.6
World	5290.5	9,972	0.753	67.5	83.9	67.5

Source: UNDP (2009). Notes: [a] 2007, [b] 2008, [c] PPP – purchasing power parity.

One stylised fact on the case of Sudan is that Sudan is large by regional standards, but its economy is small in global terms. According to the World Bank and United Nations classification and definition, Sudan is classified among Sub-Saharan African countries and among the poor and low income and highly indebted countries. For instance, the UNDP and the World Bank shows the low GDP per capita income in Sudan which is in excess of only least developing countries, but less than all other World regions. Despite the high and increasing inflow of Foreign Direct Investment (FDI) to Sudan, but different from other World regions, Sudan suffered from the high increase in debt services both as percentage of GDP and as percentage of exports over the period (1990-2005). That was most probably because like most African countries, Sudan's economy has relied heavily on a large influx of foreign aid from different sources; Sudan is among the top ten recipients of gross Official Development Assistance during (1990-2007) - see Table 2 below

Table 2- GDP Per capita, Inflow of Foreign Direct Investment (FDI), Private capital and Debt services in Sudan Compared to other World regions(1990-2005)(US$ million)

Country and Regions	GDP Per capita	**Official development assistance (ODA) received** (net disbursements)				FDI		Private Capital		Debt services			
		Total (US$ million)	**Per capita** (US$)	**As % of GDP**		% GDP		%GDP		% GDP		% Exports	
	2005	2005	2005	1990	2005	1990	2005	1990	2005	1990	2005	1990	2005
Sudan	2,083	1,828.6	50.5	6.2	6.6	–0.2	8.4	0.0	0.2	0.4	1.4	8.7	6.5
Developing countries	5,282	86,043.0	16.5	1.4	0.9	0.9	2.7	0.5	1.5	4.4	4.6	15.6	13.0
LDCs	1,499	25,979.5	33.9	11.8	9.3	0.3	2.6	0.5	0.8	3.0	2.3	16.9	7.0
Arab countries	6,716	29,612.0	94.3	2.9	3.0	0.5	1.5	n.a.	1.8	n.a.	n.a.	21.3	8.5
Asia and the Pacific	6,604	9,541.6	4.9	0.8	0.2	1.7	3.4	n.a.	n.a.	n.a.	n.a.	9.9	2.6
Latin America and the Caribbean	8,417	6,249.5	11.3	0.5	0.3	0.8	2.9	0.5	1.2	4.0	6.6	23.7	22.7
South Asia	3,416	9,937.5	6.3	1.2	0.8	n.a.	0.8	0.3	1.2	2.3	2.6	22.8	15.4
Sub-Saharan Africa	1,998	30,167.7	41.7	5.7	5.1	0.4	2.4	0.3	1.7	n.a.	n.a.	10.5	5.8
Central and Eastern Europe	9,527	5,299.4	13.1	n.a.	0.3	n.a.	4.0	n.a.	4.4	n.a.	n.a.	n.a.	n.a.
OECD	29,197	759.4	n.a.	n.a.	n.a.	1.0	1.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
High Income countries	33,082	n.a.	n.a.	n.a.	n.a.	1.0	1.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Middle Income countries	7,416	42,242.2	13.7	0.7	1.3	0.9	3.1	0.4	2.2	4.5	5.5	20.3	14.3
Low Income countries	2,531	44,123.0	18.2	4.1	3.2	0.4	1.4	0.3	1.0	3.7	3.1	27.1	13.7
World	9,543	106,372.9	16.3	0.3	0.2	1.0	1.9	n.a.	2.0	n.a.	5.1	n.a.	n.a.

Source: UNDP- HDR (2007) pp. 231-232, 392-293. Note: (n.a.) means that data and information are not available

[8] The World Bank and United Nations Development Programme (UNDP) Human Development Report classify world countries differently according to income level. We use the World Bank classification of economies that puts Sudan in the lower middle-income category or group.

As for the structure of the economy, since long, the structure of Sudan economy is characterised by small share of industry, notably, manufacturing; high share of agriculture and services sectors in GDP and employment and dependence on primary exports, mainly, dependence on the exports of agricultural products- see Table 3 below. Agricultural sector remains Sudan's most important sector, employing 80% of the workforce and contributing 39% of GDP. According to World Development Indicator database (WDI 2005) the structure of Sudan economy shows the importance of both the agricultural (71%, 39%) and services sectors (21%, 43%) compared to the industrial sector (9%, 18%) in terms of both the share in total employment (1990) and value added as a percentage of GDP (2002) respectively.[9] The share of agriculture in GDP increased from 30.3% in 1990 to 49.8% in 1999 and then declined to 31.1% in 2009; the share of the services in GDP declined from 54.4% in 1990 to 34.4% in 1999 and then increased to 45.0% in 2009; the share of industry in GDP increased from 15.4% in 1990 to 15.8% in 1999 and then increased to 23.9% in 2009- see Table 3.

In 1999, Sudan began exporting crude oil and in the last quarter of 1999, recorded its first trade surplus. Increased oil production revived light industry, and expanded export processing zones helped sustain GDP growth at 6.1% in 2003. These gains, along with improvements to monetary policy, have stabilized the exchange rate. In recent years after the exploitation of oil Sudan economy become increasingly dependent on oil exports, and the economy turned into an oil dependent economy. Currently oil is Sudan's main export, and the production is increasing dramatically. With rising oil revenues the Sudanese economy is booming, with a growth rate of about 9% in 2007. Sudan's non-oil exports are diversified across a wide range of products, but most of these exports are concentrated in few countries (WB-DTIS, 2008). Sudan's real growth of trade of 25% in 2007 represents the second highest growth in the world for that year among all countries (WB-DTIS, 2008). In recent years the increasing dependence on oil leads to sound economic growth. Consequently, Sudan's real economic growth averaged about 9% during (2005-2006), putting Sudan among the fastest growing economies in Africa (WB, 2008). According to the World Bank (2008) Sudan is one of the newest significant oil producing countries in the World; Sudan is the third largest oil producers in Sub Saharan Africa (SSA) behind Nigeria and Angola. As a result, in recent years, the structure of the Sudanese economy has shifted over time, from predominantly reliant on agriculture for growth and exports, to its current reliance on the oil sector (WB, 2008). But while the increasing dependence on oil leads to several positive impacts it also lead to several negative impacts and increasing debate for and against the incidence of the Dutch Disease in Sudan economy.

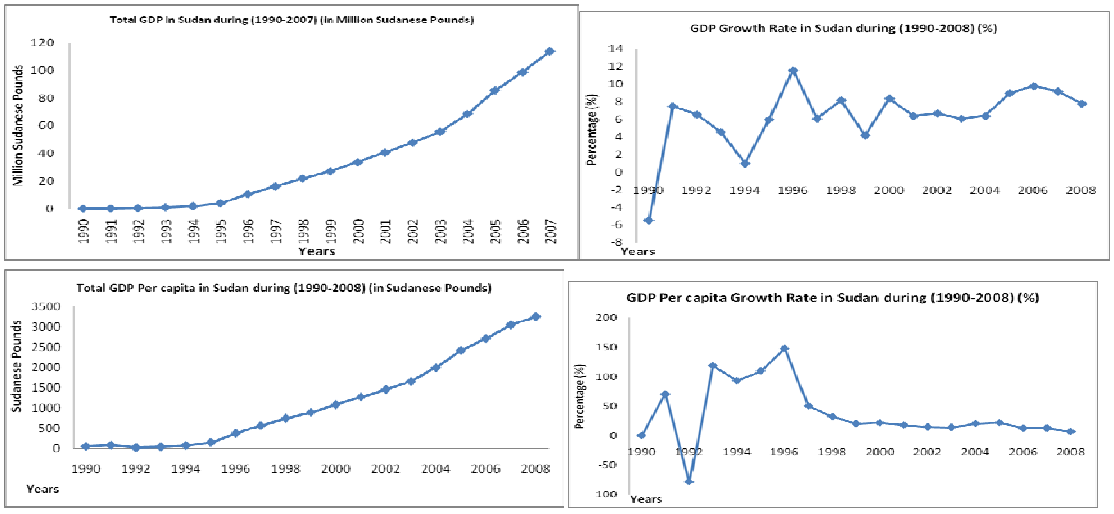
[9] See for instance, the World Development Indicator database: WDI (2005).

Table (3) - The Performance, Structure and Structural Change in Sudan Economy (1990-2009)

Year	GDP	GDP Growth Rate	GDP Per capita	GDP Per capita Growth Rate	Inflation Rate	Exchange Rate	Balance of payment	Balance of Trade			Structure of Sudan Economy (share of sectors in GDP)		
								Exports	Imports	Balance	Agriculture	Industry	Services
1990	244.7	5.4	47.7	0	41	0.45	-76.1	374	618.4	-244.4	30.3	15.4	54.4
1991	276.8	7.5	81	69.8	62.7	0.69	-101.3	308.7	890.3	-581.6	28.7	17.6	53.9
1992	4327.8	6.5	17.2	-78.7	105.4	9.7	-58.1	319.3	820.9	-501.6	33.7	17.1	49.1
1993	5862.1	4.5	37.6	118.4	115	16.1	37.7	417.3	944.9	-527.6	37.9	17.4	44.5
1994	6351.2	1	72.5	92.7	96.3	29.6	17.9	535.6	1059.6	-524	40.1	16.4	43.5
1995	9880.7	5.9	151.7	109.4	177.2	55.9	-58.1	555.7	1184.8	-629.1	43.1	15.8	41.1
1996	8259.3	5.9	375.9	147.7	76.3	125	-63.9	620.3	1504.5	-884.2	44.9	14.5	40.6
1997	10684.8	6.3	563.7	50	52.6	156.9	-36.2	594.2	1421.9	-827.7	47.6	15.1	37.2
1998	11513.7	6.4	743.7	31.9	28.2	198.8	25.1	595.7	1732.2	-1136.5	48.6	15	36.2
1999	10325	6.7	892.3	20	6.4	252	111.5	780.1	1256.2	-476.1	49.8	15.8	34.4
2000	11242.2	8	1,083.10	21.4	8.5	257.2	81.5	1807	1553	254	46.4	21.4	32.2
2001	12596.5	6.7	1,274.00	17.6	4.8	257.3	-90.04	1547	1457	90	45.6	22.8	31.6
2002	3924	6.5	1,457.40	14.4	8.3	236	198.72	1949	2179.22	-230.11	46	23.2	30.9
2003	4549	6	1,656.40	13.7	7.7	261	422.6	2542.2	2536.1	6.07	44	24.1	30.3
2004	5278	7.2	1,991.20	20.2	8.5	258	730.2	3777.75	3586.18	191.57	40	28.0	32.0
2005	6283	8	2,421.20	21.6	8.5	245.6	530.5	4824.3	5,946.0	-1121.7	39.0	28.0	32.0
2006	22,217.0	10.0	2,719.00	12.3	7.2	2.0248	-208.6	5,656.6	7,104.0	-1,448.1	36.8	27.5	35.7
2007	22,21	10.5	3,059.20	12.5	8.1	2.0308	-282	8,879.2	7,722.4	1,156.8	35.3	30.6	34.1
2008	26.03	7,8	3,262.60	6.6	14,3	2,09	21.1	11,670.5	8,229.4	3,441.1	29.3	29.2	41.5
2009	27.63	6.1			11,2	2,32	-502.2	7,833.7	8,528.0	-694.3	31.1	23.9	45.0

Sources: (1) Ministry of Finance and National Economy, (2) Central Bank of Sudan (3) Sudan Central Bureau of Statistics: Sudan Ministry of the Cabinet- central bureau of statistics: Sudan statistical year book: Sudan statistics 1990- 2008: pp. 39-43.

Figures 1- 4 – Total and Growth Rates of GDP and GDP Per Capita in Sudan during (1990-2008) (Millions Sudanese pounds) and (%)



Source: Adapted from Sudan Central Bureau of Statistics: Sudan Ministry of the Cabinet- central bureau of statistics: Sudan statistical year book: Sudan statistics 1990- 2008: pp. 39-43

As for the economic reform, since gaining its independence in 1956 and over the past decades, Sudan economy suffered from continuing macroeconomic instability and crisis, low GDP per capita income, presence of high rates of poverty, unemployment, inequalities, weak economic performance and an uneven growth until recent years. The imperative of reforming macroeconomic management in Sudan dates back to the 1970s and 1980s, when the first wave of reforms was undertaken during 1978-1984. A new wave of intensive reforms was initiated, culminating in the adjustment policies of the medium-term National Economic Salvation Programme (NESP) for 1990/91-1992/93, which was merged into the Comprehensive National Plan (CNP) of 1992-2002. The broad objective of NESP was the revitalization of the Sudanese economy. The government reform efforts emphasized four aspects in particular[10]: (a) restoring macroeconomic stability and combating runaway inflation through tough fiscal and monetary policies; stabilization of the foreign exchange rate through managed floating; (b) emphasizing

market-oriented economic activity, liberalization, abolition of controls and deregulation of imports, foreign exchange, and prices; (c) limiting the role of the state through privatizing public-sector enterprises and extending the role of the private sector to all activities including health, education and utilities; and (d) Encouraging saving by reforming the financial system and banking sector and introducing new saving instruments.[11] Since the late 1990s, notably, 1997, due to implementation of macroeconomic reforms policies recommended by the IMF, Sudan then finally achieved great improvement in the performance of most macroeconomic indicators, impressive real economic growth and rapid increase in GDP and GDP per capita incomes- see Table 3 and Figures 1-4 above. Consequently, due to this economic reform along with the positive contribution of oil in Sudan economy since 1999, the Sudan turned from a low income economy into a lower medium income economy according to the World Bank classification in the recent years

According to UNDP (2010), prior to the global financial crisis, the Sudanese economy has been one of the fastest growing in the world despite the USA sanctions. The Nominal Gross Domestic Product (GDP) grew from US $ 9.9 billion (IMF 1980) to US $ 57.9 billion.[12] The GDP growth is expected to be around US$ 52.2 billion in 2009. In recent years, growth rates increased from 7.1 % (2003) to 10.2 % (2007).[13] However, the global financial crisis and related shock in 2008 and 2009 resulted in low global oil prices, stagnating domestic oil production and caused reduction in GDP growth rate that dropped from 10.5% in 2007 to 7.8% and 5% in 2008 and 2009 respectively-see Table 3 and Figures 1-4 above. A recent IMF report ranked Sudan as one of the most vulnerable low -income countries in the global financial crisis due to its high vulnerability to trade, aid and remittances shocks. IMF adjusted 2009 GDP growth projections for Sudan downwards by 6.7%, representing the fourth largest adjustment of the 71 low-income countries assessed[14]. Past growth was not sufficiently broad-based, investments and services are concentrated in and around Khartoum state and to a lesser extent Juba, the capital of southern Sudan. The significant disparities between urban and rural areas and between regions contributed to growing inequalities and an increasing urban informal sector accounting for more than 60% of GDP. This state of affairs has been encouraging a rural-urban migration that might weaken the agricultural productivity, deepen poverty in urban and rural areas (and unemployment in urban area).[15]

Despite the recent impressive real growth and rapid increase in per capita incomes following oil exploitation but emerging vulnerabilities and little progress in social indicators still

[10] See for instance, the World Bank, (2003), Vol. I: 44.
[11] See the United Nations Development Programme UNDP in Sudan (2006) "Macroeconomic Policies for Poverty Reduction: The Case of Sudan," Khartoum, Sudan, 2006.
[12] See IMF projection for 2008
[13] See IMF Projection for 2008 and IMF First Review of Performance Under the 2007-2008 Staff-Monitored Program, June 2008, p.2.
[14] See IMF Report on the implications of the Global Financial Crisis for Low-Income Countries, March 2009, p.50
[15] See the UN Millennium Development Goals in Sudan: http://www.sd.undp.org/mdg_sudan.htm, accessed on June 01, 2010.

exist and Sudan still faces formidable economic problems, as yet it is one of the least developed countries in the world and it must rise from a very low level of per capita output. This is evidence from UNDP-Human Development Indicators (2007) and (2009) which indicate that Sudan has scored medium in human development in the last few years, it is classified amongst the bottom of developing countries in terms of HDI, as it ranked 147 and 150 out of 177 developing countries in 2007 and 2009 respectively.[16] Moreover, as for progress and the status of Millennium Development Goals (MDGs) in Sudan, according to UNDP (2010), while progress has been made towards several of the Millennium Development Goals (MDGs), such as in the area of education, infant and child mortality, access to water and sanitation, Sudan's performance against the MDG indicators demonstrates big inequalities with respect to gender, rural-urban residence, and at the regional and sub-regional level- see Table 4 below.[17] A rapid acceleration of development efforts is needed if Sudan is to achieve the MDGs by 2015, especially in war-affected areas. Estimated poverty rates remain high with up to 90 percent in Southern Sudan and in the so-called Protocol Areas which are Southern Kordofan, Blue Nile and Abyei. In addition, barely 1 in 5 children complete primary school; clean water is available to only 1 in 4 in some regions and maternal mortality ratio in Southern Sudan is among the highest in the world. Opportunities from economic growth as well as a transition from a humanitarian context to recovery and development are, however, apparent. According to UNDP (2010) due to the global shock, especially regarding oil prices and international lending, but also with respect to expected reductions in FDI, remittances and aid, Sudan is about to face significant financing shortages for its 2009 federal budget, and will have to drastically reduce its public spending, affecting government's capacity to invest in MDGs and poverty reduction. Poverty is widespread in Sudan, for instance, UNDP's 2008 Human Development Report HDR ranked the country 147th among 177 countries compared to position 141 in 2006. According to a 2007 joint World Bank-UNDP mission, about 60-75% of the population in the North and 90 per cent in the South are estimated to be living below the poverty line of less than US $ 1 a day. The hardest hit by poverty are people living in rural areas, in particular women and internally displaced people who constitute about 12% of the population. The lack of formal schooling and high levels of youth unemployment is turning the potential of the young generation from an asset into a challenge for the future.[18] The low human development indicators implies that Sudan continued to fall below

[16] See http://en.wikipedia.org/wiki/Sudan Accessed June 01st, 2010

[17] The Millennium Declaration and adoption of the United Nations Millennium Development Goals (MDGs) in September 2000 implies commitment towards achievement of the eight MDGs by 2015. The Millennium Development Goals are: (1) Eradicate extreme poverty and hunger: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day, and halve, between 1990 and 2015, the proportion of people who suffer from hunger. (2) Achieve universal primary education: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. (3) Promote gender equality and empower women: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015. (4) Reduce child mortality: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate. (5) Improve maternal health: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio. (6) Combat HIV/AIDS, malaria and other diseases. (7) Ensure environmental sustainability and (8) Develop a global partnership for development. (See for instance, the UND-HDR).

[18] See The UN Millennium Development Goals in Sudan: http://www.sd.undp.org/mdg_sudan.htm accessed on June 01, 2010

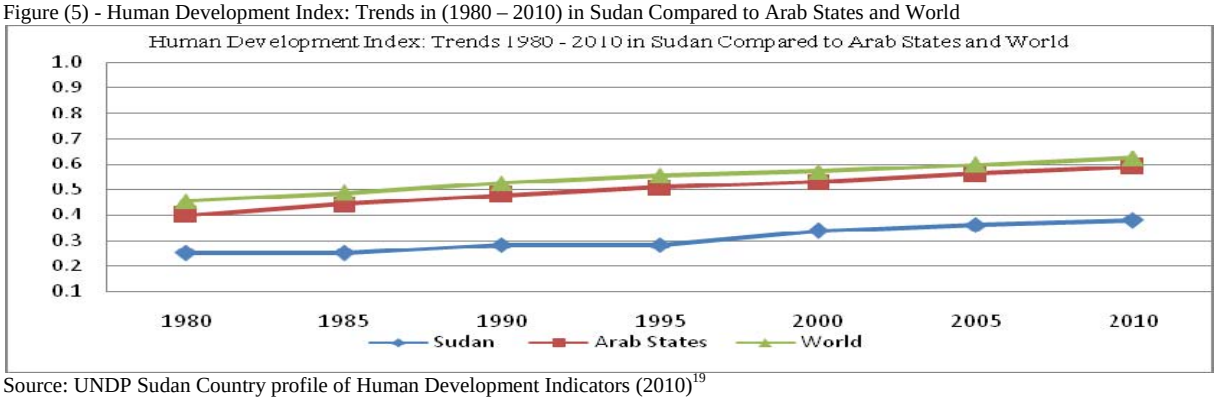
the Arab states and world average level over the past three decades, for instance, the trend of human development index over the period (1980-2010), implies that Sudan's level in 2010 fall s below the Arab states and world average level not only in 2010 but also in 1980- see Figure 5 below.

Table (4) - The status of MDGs in Sudan in 2008

MDGs / Indicators	Indicators	Northern Sudan	2015 Target	Southern Sudan	2015 Target
MDG 1 Eradicate Extreme Poverty and Hunger	Estimated poverty incidence (% of total population) *	50%	45%	90%	45%
	Prevalence of child malnutrition (underweight for age; % under 5)*	35%	16%	48%	24%
	Prevalence of acute child malnutrition * (underweight for weight; % under 5)	16%	8%	21%	11%
MDG 2 Achieve Universal Primary Education	Gross primary enrolment ratio***	62%	100%	20%	100%
	Percentage of cohort completing primary school***	21%	100%	2%	100%
	Adult literacy rate **	60-70%	25%1	(North and South)	
MDG 3 Promote Gender Equality and Empower Women	Ratio girls to boys in primary education***	88%	100%	36%	100%
	Women's literacy rate	62%	-	12%	-
	Percentage of women in National Assembly/Council of States	19%	-	4%	25%
MDG 4 Reduce Child Mortality	Under-5 mortality rate (per 1,000)*	105	35	126	83
	Infant mortality rate (per 1,000 live births)*	70	-	89	-
	One-year-olds immunized against measles ***	78%	-	20.2%	-
MDG 5 Improve Maternal Health	Maternal mortality ratio (per 100,000 live births)	638	127	2,054	425
	Birth attended by skilled health staff *	57%	90%	5%	90%
MDG 6 Combat HIV Aids, Malaria and other diseases	Contraceptive prevalence (% of women ages 15-49)***	7%	-	< 1%	-
	HIV Prevalence (% adults ages 15-49)*	1.6%	-	2.3%	-
	Incidence of TB (per 100,000 per year)***	90	-	325	-
	Children under 5 with fever treated with anti-malarial (%)	54.2%*	-	36%***	-
MDG 7 Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources	Access to improved drinking water source (% of population)*	58.7%	85%	48.3%	75%
	Access to improved sanitation (% of population) *	39.9%	67%	6.4%	53%
MDG 8 Develop a Global Partnership for development	Progress in Sudan • The Darfur crisis is currently preventing progress in global partnership, • To achieve the MDGs, Sudan will need to make significant investments to build the capacity of human resources, infrastructure and institutions as well as to mobilize resources to bridge the financial gap. • It is necessary that a continuous and sustained effort by the Sudanese people, its governments, and the international community is exerted to achieve MDG8.				

Sources: This document has been prepared by the UN Resident Coordinator's Support Office, Khartoum, Sudan: http://www.sd.undp.org/mdg_fact.htm, accessed in June 01, 2010.
Notes: *Sudan Health and Household Survey 2006; ** EFA Global Summary Report 2008 p.17.
*** Sudan Millennium Development Goals. Interim Unified Report, 2004.

Figure (5) - Human Development Index: Trends in (1980 – 2010) in Sudan Compared to Arab States and World



Source: UNDP Sudan Country profile of Human Development Indicators (2010)[19]

[19] See UNDP (2010): http://hdrstats.undp.org/en/countries/profiles/SDN.html, accessed on December 22, 2010.

3. Stylized facts: characteristics and structural problems of the labour in the Sudan

Based on the above, it is now useful to explain if the structure of labour market is affected by the analysis presented in section two above. Notably, from the above analysis, we observe that the north-south conflict also contributes to increase unemployment because the civil war not only led to displacement of many workers and job loss but also implied the large spending on defense and security issues rather than prioritizing investment in social development and creation of more employment opportunities, this in turn contribute to increase in unemployment problem in Sudan. Furthermore, since the structure of Sudan economy is now related to oil, it will be useful to briefly examine the impact of oil in the labour market in Sudan. We find that oil has slight effect in the labour market because the exploration and production of oil leads to creation of more employment opportunities -although difficult to elaborate due to lack of accurate recent data. For instance, of total labour force estimated at 9,7000,000 in 2001, the share and contribution of oil industries in total employment is very minimal and accounted for only 0.0087% of total employment of labour force in Sudan (2001) and only 0.52% of total employment in the industrial manufacturing sector in Sudan (2001). It is worthy to note that the contribution of oil industries represent only 0.52% of total employment and 0.64% of total number of labour employed in the industrial manufacturing sector in Sudan (2001) but in the meantime oil industries is ranked second in terms of the contribution to industrial value added as it accounts for 11% of total industrial value added in the manufacturing industries in Sudan, this implies that oil industries tend to use more capital intensive techniques and to be a more capital intensive industry. For instance, in the three oil establishments included in the comprehensive industrial survey (2005), the total employment was 846 and the total labour was 845 (of which production workers were 830 and non production workers were 15) in 2001.[20] Moreover, other impact of oil in the labour market is that the inflow of FDI and the increased wealth from oil has encouraged migration to the Sudan. Consequently, migrant workers have increased in the labour market, particularly in the private sector, which has also affected the structure of labour market and contribute to high unemployment rate. Furthermore, oil also affected the structure of wages and lead to wage differential in Sudan, for instance, the results of the comprehensive industrial survey (2005), indicates that the highest compensation for workers in the industrial sector is reported in the petroleum refining industry which is 18 times more than the average compensation in the industry in 2001.[21]

Based on the above, it would be interesting to begin with explaining the stylized facts on the characteristics and structural problems of labour market in the Sudan. First we explain the relation between the structure of labour market and the demographic structure, participation rates

[20] See for instance, Sudan central bureau of statistics Statistical Year Book (2001), Khartoum, November 2003 for the data on the total number of labor force in Sudan in 2001.See for instance, the Sudan Ministry of Industry (2005) the Comprehensive Industrial Survey data for (2001) (Tables 12- 13: the industrial survey pp.72-75) for the data on total number and share of oil in total employment and in employment in the industrial manufacturing sector in Sudan in 2001.

and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problems in Sudan.

3.1 Labour market structure, demographic structure, participation rate and economic activities

Before explaining the relation between the structure of labour market and the demographic structure, participation rate and economic activities, it is useful to identify the major stylized facts and characteristics of labour market in the developing countries. For instance, we observe that one stylized fact that characterized the labour market in Sudan as in many other Arab and typically developing countries is the dominance-reflected in the large share- of the public (government) sector in total employment compared to the weakness of the private sector. Majority of employed workers are concentrated in the traditional agricultural sector, while manufacturing and industrial sectors have only marginal share in total sectoral employment. The techniques of production are most likely characterized by high labour intensity and low capital intensity, low productivity of labour and small rates of return on employment (real wages). The labour market is characterized by weak, informal and unsystematic role for the labour union or workers associations, weak social security system and social protection for workers, lack of unemployment insurance, weak and inefficient regulations and institutional settings to organize the labour market, rigidity and lack of dynamism, deficiency in employment, monitoring, planning and skill upgrading. In addition to the high incidence of duality (due to presence of two sectors together: rural-urban; traditional-modern and formal-informal); prevalence of high rates of unemployment, especially among youth population and child labour.[22] Increasing share of youth in total population and labour force, low participation rates, especially low participation rates for women. Mismatch between educational output (supply) and labour market requirements (demand). These distinctive features of Sudan and Arab labour markets were caused by such fundamental forces as high population and labour force growth rates, macroeconomic fluctuations caused by oil price instability, and the pervasive role of the State in the region's economic activity… A demographic transition which resulted in rapid population growth, slow down in labour absorption and combined with large-scale shifts of population from rural to urban areas, led to severe pressures on labour markets, especially in urban areas.[23] In addition to increasing debate that in the Arab oil dependent countries, the structure of labour market suffers from the impacts of the Dutch disease.

One stylized fact of labour market in Sudan is related to the demographic structure for Sudan which indicates continuous and rapid increase in total population from 10 million in 1956

[21] See the Executive Summary of the Sudan Comprehensive Industrial Survey, (2005), p. 29.

[22] Based on the UNDP (2010) definition of child labour as the percentage of children ages (5–14) in the labour market the UNDP-HDR (2010) indicates the high rates of child labour in Sudan as the percentage of children ages (5–14) in the labour market in Sudan that accounted for 13% of children ages (5-14) over the period (1999-2007)- see UNDP-HDR (2010), p. 191.

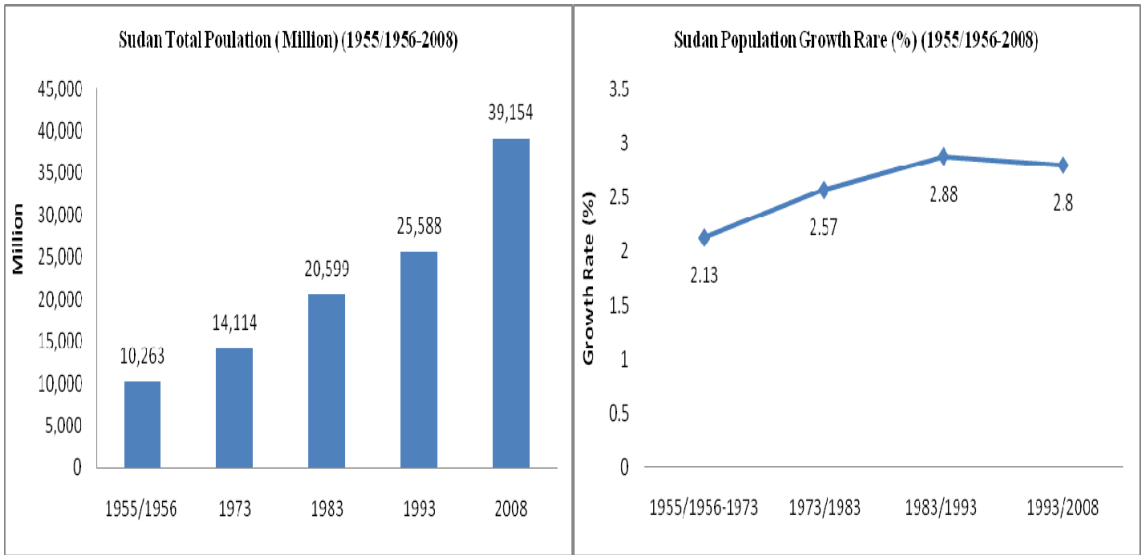
to 39 million in 2008; and increase in the growth rate in total population from 2.1 in 1956 to 2.8 in 2008 – see Figures 6-7 below. According to the central bureau of Statistics (2010), data from the 2008 population census indicates that the share of urban population is 29.5% compared to rural and nomad population which is 70.5% of Sudan total population, and the share of population aged (5-24) represents about 47.38% of the total population in Sudan in 2008.[24] Moreover, the findings from the central bureau of Statistics (2010), data from the 2008 population census indicates that the structure and distribution of the total population by main geographic areas, gender and age indicates that the share of the north (78.9%) is higher than the share of the south (21.1%); the share of male (51.27%) is higher than female (48.73%), the share of population with 17 years old and over (52.85 %) is higher than the share of the population with 16 years old and less (47.15 %)-see Table 5 below. This structure and distribution of total population by main geographic areas, gender, age and mode of living will have several important implications in the structure of labour market, notably, labour force, participation rates, economic activities, skill level, employment and unemployment rates as we will explain in this section.

For instance, we observe that the first implication and stylized fact is that the continuous increase in the total population implies continuous increase in the total labour force from 16.5 in 1998 to 21.5 in 2006 and to 22.5 in 2008- see Table 6 below. Another stylized fact in the labour market in Sudan is the low participation rates. For instance, data from Arab Labour Organization, Sudan Ministry of Labour and Public Service Migration and Labour Force Surveys 1993 and 1996 and Sudan central bureau of statistic (2010) the Fifth Sudan Population and Housing Census (2008) show that the demographic structure and labour force (15 years and above) in Sudan, implies that the share of Sudanese women in labour force (31.1%) is less than Sudanese men (72.2%) and total Sudanese labour force (52.4%). The participation rate (for 15-24 years old) for Sudanese women (6.08%) is less than that of Sudanese men (15%), less than total Sudanese participation rate (10.08%). Both crude and adjusted participation rates show continuous rapid increase in the period 1990-1996, in Sudan. Our findings indicates that compared to 1996 in 2008 the crude participation rates for the total population increased to (43.68%), but they declined for men (28.99%) and for women (14.69%), whereas adjusted participation rates declined for men (57.90%) and increased for women (29.42%). Both crude and adjusted labour force participation rates in economic activities defined by mode of living and gender, indicate that the participation rates are higher for people (men and women) living in rural areas compared to people (men and women) living in urban areas and participation rates for women are less than men over the period 1990-2008. In 2008 crude and adjusted labour force participation rates in economic activities defined by main geographical areas, indicate that the

[23] See for instance, Shaban, Assaad and Al-Qudsi, (1995).

crude participation rates are higher for people (men and women) living in the north region compared to people (men and women) living in the south, whereas the opposite is true for the adjusted participation rates- see Table 7 below. These findings are consistent with the findings from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender, mode of living and main geographical areas as we explained above.

Figures 6-7- Total Population (Million) and Population Growth Rare (%) in Sudan over the period (1955/1956-2008)



Source: Adapted from Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008)

Table (5) – The Distribution of Sudan Total Population defined by Main Geographical Areas, Age and Gender (2008)

All Sudan									
Age Groups	Total	Male	Female	Total	Male	Female			
Total	**39,154,490**	**20,073,977**	**19,080,513**	100.00%	51.27%	48.73%			
00 - 04	5,845,991	3,005,746	2,840,245	14.93%	7.68%	7.25%			
05 - 09	5,801,776	3,023,603	2,778,173	14.82%	7.72%	7.10%			
10 - 14	5,036,037	2,689,626	2,346,411	12.86%	6.87%	5.99%			
00-14	16,683,804	8,718,975	7,964,829	42.61%	22.27%	20.34%			
15 - 19	4,176,355	2,151,401	2,024,954	10.67%	5.49%	5.17%			
20 - 24	3,537,012	1,740,076	1,796,936	9.03%	4.44%	4.59%			
15-24	7,713,367	3,891,477	3,821,890	19.70%	9.94%	9.76%			
25 - 29	3,114,966	1,466,418	1,648,548	7.96%	3.75%	4.21%			
30 - 34	2,503,963	1,207,987	1,295,976	6.40%	3.09%	3.31%			
35 - 39	2,314,365	1,134,069	1,180,296	5.91%	2.90%	3.01%			
25-39	7,933,294	3,808,474	4,124,820	20.26%	9.73%	10.53%			
40 - 44	1,773,831	905,533	868,298	4.53%	2.31%	2.22%			
45 - 49	1,303,680	689,233	614,447	3.33%	1.76%	1.57%			
50 - 54	1,094,706	581,191	513,515	2.80%	1.48%	1.31%			
55 - 59	635,801	350,041	285,760	1.62%	0.89%	0.73%			
40-59	4,808,018	2,525,998	2,282,020	12.28%	6.45%	5.83%			
60 - 64	691,103	380,847	310,256	1.77%	0.97%	0.79%			
65 - 69	396,288	227,674	168,614	1.01%	0.58%	0.43%			
70 - 74	415,695	229,753	185,942	1.06%	0.59%	0.47%			
75 – 79	193,068	112,065	81,003	0.49%	0.29%	0.21%			
80 – 84	178,990	97,556	81,434	0.46%	0.25%	0.21%			
85 – 89	65,235	38,504	26,731	0.17%	0.10%	0.07%			
90 – 94	41,546	23,528	18,018	0.11%	0.06%	0.05%			
95 and over	34,082	19,126	14,956	0.09%	0.05%	0.04%			
60 and over	2,016,007	1,129,053	886,954	5.15%	2.88%	2.27%			
Main Geographical Areas	Total			00 – 16			17 and above		
Total	Total	Male	Female	Total	Male	Female	Total	Male	Female
All Sudan	39,154,490	20,073,977	19,080,513	18,462,359	9,654,379	8,807,980	20,692,131	10,419,598	10,272,533
Northern Sudan	30,894,000	15,786,677	15,107,323	14,414,910	7,505,749	6,909,161	16,479,090	8,280,928	8,198,162
Southern Sudan	8,260,490	4,287,300	3,973,190	4,047,449	2,148,630	1,898,819	4,213,041	2,138,670	2,074,371
Share in Total (%)									
All Sudan	100.00%	51.27%	48.73%	47.15%	24.66%	22.50%	52.85%	26.61%	26.24%
Northern Sudan	78.90%	40.32%	38.58%	36.82%	19.17%	17.65%	42.09%	21.15%	20.94%
Southern Sudan	21.10%	10.95%	10.15%	10.34%	5.49%	4.85%	10.76%	5.46%	5.30%

Source: Adapted from Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008)

[24] See Sudan Central Bureau of Statistics (2008) "Central Bureau of Statistics: Sudan Statistics and Statistical Year Book: Sudan (1990- 2008)" Sudan central Bureau of Statistics, Sudan Ministry of the Cabinet, 2008, p. 3.

Table (6) Basic Indicators of labour force, unemployment and inflation rates in Sudan over the period (1990-2008)

(a) Total (1990-2008)															
Indicators	1990	1993	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Labour force		13590			16,5	17,1	17,6	18,8	19	19,5	20,0	21	21,5	22	22.5
Total economically active Labour force	6,247807	7,211540	9,583146	8,368	8,6	8,9	9,2	9,7	10,4	11,3	10,7	11,1	11,5	11,1	13.0
Labour force Employed	5,360618	6,475540	8,219146	6,665	7,2	7,5	7,8	8,3	8,5	8,6	9	9,2	9,6	9	10.3
Employment opportunity				1.5	…	0.2	0,3	1.4	1.90	0.29	4.4	6.1	8.3	8.1	7.9
Labour force Unemployed		736000	1,364000	1,475	1,3	1,4	1,4	1,459	1,6	1,8	1,7	1,8	1,9	2,2	2.7
% rate of employment	85.8	89.7	85.7	81,9	84.9	84.3	84.8	85	84.2	84.7	84.7	84.8	83.7	80.6	79.3
% rate of Unemployment	14.2	10.3	14.3	18.1	15.1	15.7	15.2	15.0	15.8	16.3	16.3	16.2	17.3	19.4	20.7
Inflation rate	41	115	76.3	52.6	28.2	6.4	8.5	4.8	8.3	7.7	8.5	8.5	7.2	8.1	14,3

(b) Distribution according to mode of living (1990-2008)													
Indicators/ year[1, 3]	1996[1]			1997			1998			2008			
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Nomad	Total
Manpower/ Population in working age/ Labour force [1, 3]	2448	5464	7913	2570	5570	8140	2698	5677	8375	8398287	16397760	1875411	26671458
New entrance in labour market[1,3]	Na	Na	Na	122	106	228	128	107	235				
Employed [1, 3]	1937	4583	6520	1998	4667	6665	2058	4754	6812	2766295	6265560	762165	9794020
Employment opportunities [1, 3]	Na	Na	Na	61	84	145	60	87	147				
Unemployed [1, 3]	511	881	1393	572	903	1475	640	923	1563	388439	1328449	139335	18562223
Unemployment rate[1, 3]	20.9	16.1	16.6	22.3	16.2	18.1	23.7	16.3	18.7	33.3%	11.40%	1.20%	15.93%

Sources: (1) Ministry of Labour and Administration Reform- Department of Planning and Monitoring and Follow-up
Sources: (2) Central Bureau of Statistics - Migration and Labour Force Survey 1996. (3) Central Bureau of Statistics– Department of Internal Commerce and Pricing. (4) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008), (4) Note: Figures for 1998 from Ministry of Finance and National Economy- Annual Economic Survey 2000, Table 7-2, p. 10.

Table (7) Labour Force crude and adjusted participation rates (%) defined by gender and mode of living in Sudan (1990-2008)

	Crude			Adjusted		
Year	MW	M	W	MW	M	W
1990[1]						
Total	29.1	44.3	13.2	39.3	59.7	18.0
Urban	28.1	44.3	10.8	47.2	58.2	14.4
Rural	31.1	44.3	18.1	44.3	63.4	20.8
1996[1]						
Total	34.1	47	21.4	45.5	63.6	28.2
Urban	26.9	46.8	15.5	38.7	58.8	19.4
Rural	36.3	47.1	14.4	46.6	67.2	34.0
2008[2]						
Total	43.68%	28.99%	14.69%	43.66%	57.90%	29.42%
Urban	11.83%	8.56%	3.27%	37.56%	52.91%	21.36%
Rural	28.47%	17.83%	10.65%	46.31%	59.32%	33.87%
Nomad	3.38%	2.61%	0.77%	48.07%	67.80%	24.28%
North	30.10%	22.14%	7.96%	37.35%	54.77%	19.82%
South	13.58%	6.85%	6.73%	69.95%	70.97%	68.94%

Sources (1) Ministry of Labour and public service Migration and Labour Force Surveys 1990 and 1996 (2) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008). Note: Participation rate for 1990 and 1996 refers to the Northern Sudan.

Another stylized fact on the structure of labour market in Sudan is the inconsistent distribution of the economically active population according to major economic activities (sectoral classification) defined by gender in Sudan. For example, according to Arab Labour Organization (2007) data for 2004 and Sudan central bureau of statistic (2010) population census data for 2008 indicate that the majority of Sudanese are employed in agriculture, fishing and forest activities (51.8%; 48.56 %), followed by services sector (23%, 31%), industry (8.9%, 7.65%) and finally few are employed in other activities (1.2%, 12.24%) in 2004 and 2008 respectively. This structure implies that agriculture is still the predominant activity in Sudan, although its share of the labour force has gradually declined as other sectors of economic activity have expanded. In the 2008 census almost 48.56 percent of the work force were involved in agriculture, livestock raising, forestry, fisheries, or hunting, compared with 60.74 in 1993 and 51.08 in 2004. Services, which included a government work force that grew in terms of employment emerged as the second largest area of activity, encompassing an estimated 31.55 percent of those economically active in 2008, compared with 28.04 percent in 1993 and 23 percent in 2004. Industrial sector - including manufacturing, mining, electric power, and construction- accounted for 7.65 percent in

2008 compared to about 9.74 percent in 1993 and 8.19 percent in 2004- see Table 8 below. Sudan central bureau of statistic (2010) population census data for 2008 indicates that the majority of Sudanese men are employed in the agriculture sector (48.13%), followed by services (35.9%), industry (10.22%) and other activities (5.75%), similarly, the majority of Sudanese women are employed in the agriculture sector (49.48%), followed by services sector (22.45%), industry (2.27%) and other activities (25.8%). Employed Sudanese men constitute the majority of total employment in all sectors (67.67%), whereas employed Sudanese women constitute the minority of total employment in all sectors (32.33%). Sudanese men employed in agriculture, fishing and forest activities, services and industry sectors (32.57%, 24.29% and 6.92% respectively) are higher than Sudanese women employed in these sectors (16%, 7.26% and 0.73% respectively). This implies that Sudanese men employed in agriculture, fishing and forest activities, services and industry sectors are near to twice, near to three times, and near to seven times Sudanese women employed in these sectors respectively. These findings are consistent with the findings from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender as we explained above.

Table (8)- Economically active population according to economic activities (sectoral classification) and employment status defined by gender in Sudan in 1993-2008 (%)

(a) Economically active population by economic activities and gender	1993			2004			2008			2008	
	M	W	MW	M	W	MW	M	W	MW	M	W
Agriculture Hunting, Forestry and Fishing	38.79%	21.94%	60.74%	32.6	18.46	51.08	32.57%	16.00%	48.56%	48.13%	49.48%
Industry	9.09%	0.65%	9.74%	7.63	1	8.19	6.92%	0.73%	7.65%	10.22%	2.27%
Mining and quarrying	0.06%	0.00%	0.06%	0.05	0	0.05	0.14%	0.03%	0.17%	0.21%	.09%
Manufacturing	4.81%	0.54%	5.35%	4.04	0.46	4.5	3.09%	0.43%	3.52%	4.57%	1.32%
Electricity, Gas and Water,	0.69%	0.05%	0.73%	0.58	0.04	0.62	0.33%	0.04%	0.37%	0.49%	0.12%
Construction	3.53%	0.07%	3.59%	2.96	0.06	3.02	3.35%	0.24%	3.59%	4.95%	0.73%
Services	23.51%	4.53%	28.04%	19.61	4	23	24.29%	7.26%	31.55%	35.90%	22.45%
Wholesale and Retail Trade, Restaurants and Hotels	8.03%	0.83%	8.86%	6.72	0.7	7.45	8.13%	1.67%	9.79%	12.01%	5.15%
Transport, Storage and Communication	4.18%	0.12%	4.30%	3.39	0.12	3.51	4.20%	0.24%	4.44%	6.21%	0.73%
Financing, Insurance, Real Estate and Business Services	0.86%	0.18%	1.04%	0.72	0.15	0.87	0.16%	0.05%	0.21%	0.24%	0.15%
Community, Social and Personal Services	10.45%	3.40%	13.84%	8.78	2.64	11.42	11.81%	5.32%	17.11%	17.43%	16.41%
Activities Not Adequately Defined or Classified	1.07%	0.41%	1.49%	0.64	0.56	1.2	3.89%	8.34%	12.24%	5.75%	25.80%
Total	72.46%	27.54%	100				67.67%	32.33%	100.00%	100.00%	100.00%
Seeking work				11.25	4.6						
Unemployed				na	na	16.3					
Total				100	100	100					
(b) Economically active population by employment status											
Category	Total	%	%								
Employer	581,500	5	6								
Own account (private) worker	4,272,000	40	41								
Employee (paid worker)	3,813,000	35	36								
Unpaid family worker	1,787,400	17	17								
Other and unemployed worker	246,100	2									
TOTAL	10,700,000	100	100								

Sources: adapted from Arab Labour Organization (2007), (2) Central Bureau of Statistics– Department of Internal Commerce and Pricing. (3) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

3.2. Labour market structure, the low skill level and brain drain problems

Another stylized fact on the structure of labour market in Sudan can be observed from the skill level defined by occupation (defined by the international definition of major occupational groups classification) and education (defined by school attendance, literacy and education attainment) defined by gender and main geographic areas. For example, using the definition of skill according to occupation classification, the Arab Labour Organization (2007) data for 2004 and Sudan central bureau of statistic (2010) population census data for 2008 indicate that the majority of Sudanese economically active population or workers are medium and low skilled

(86%; 83%) and minority (14%; 12%) are high skilled. In 2004 only 14% of men are high skilled and 86% are medium and low skilled, only 15% of women are high skilled and 85% are medium and low skilled, women are slightly more skilled than men. In 2008 only 13% of men are high skilled and 79% are medium and low skilled, only 10% of women are high skilled and 84% are medium and low skilled, men are slightly more skilled than women. The majority of Sudanese workers are employed in blue collar occupation (70%, 69.4%), while the minority are employed in white collar occupation (30%, 24.4%) in 2004 and 2008 respectively. In 2004 only 33% of men are employed in white collar occupation, while 67% of men are employed in blue collar occupation, only 24% of women are employed in white collar occupation, while 76% of women are employed in blue collar occupation. In 2008 only 23.24% of men are employed in white collar occupation, while 73.42% of men are employed in blue collar occupation, only 26.9% of women are employed in white collar occupation, while 61.03% of women are employed in blue collar occupation. The classification of skill according to main geographical areas indicates that the skill level in the north is higher than in the south region- see Table 9 below. Moreover, our results from Sudan central bureau of statistic (2010) population census data for 2008 indicate the low skill level and differences in skill level in Sudan that appear in term of low school attendance, literacy rate and education attainment defined by gender, mode of living and main geographical areas. For instance the distribution of total Sudan population 6 years of age and over according to school attendance and literacy implies that only little above half of Sudan population 6 years of age and over are currently and/or previously school attending school (50.87%) and are literate (51.59%), while near to half of Sudan population 6 years of age and over have never attended school (44.62%) and are illiterate (45.19%). Moreover, the distribution of total Sudan population 6 years of age and over according to education attainment implies that about 8.30% of total Sudan population 6 years of age and over are without educational attainment. The distribution of population 6 years and above according to education attainment and currently and/or previously school attendance implies that the majority are with below primary education (42.58%), this is followed by primary education (14.84%), secondary education (12.83%), intermediate education (4.84%), university first degree education (4.70%), post secondary diploma education (1.10%), post graduate diploma education (0.29%), Masters degree education (0.24%) and Ph.D. degree education (0.09%). Furthermore, the distribution of population 6 years of age and over according to previous and/or current school attendance implies that the majority are with primary education and intermediate education and less than secondary education (19.70%), this is followed by secondary education (12.83%), and finally followed by only minority with above secondary education (5.32%) (including post secondary diploma, university first degree, post graduate diploma, Masters degree and Ph.D. degree). In addition, the distribution of population 6 years of age and over according to current school attendance implies that the majority are with primary education and less than secondary

education (73.59%), followed by secondary education (15.09%), and finally followed by only minority with above secondary education (6.72%) (including 0.31% are with post secondary diploma, 0.56% are with college education, 5.36% are with university first degree education, 0.29% are with post graduate diploma education, 0.16% are with Masters degree education and 0.04% are with Ph.D. degree education). Moreover, our results from Sudan central bureau of statistic (2010) population census data for 2008 indicate the low skill level and differences in skill level in Sudan that appear in term of low school attendance, literacy rate and education attainment defined by gender, mode of living and main geographical areas. For instance, the skill level defined by school attendance, literacy rate and education attainment for male are higher than women, for urban are higher than rural and for north are higher than and south- see Tables 10-12 below. These findings are consistent with the structure and distribution of population in Sudan in 2008 defined by gender, mode of living and main geographical areas as we explained above.

Table (9) - Economically active population defined according to major occupational groups classification, defined by gender and main geographic area in Sudan (2004-2008) (%)

Major Occupational Groups[25]	2004			2008			2008			
	M	W	MW	M	W	MW	M	W	North	South
Professional, scientists, technical, associate professionals and related workers	8.80	14.72	10.46	3.58%	2.39%	9.78%	10.92%	7.41%	4.76%	1.23%
Administrative and managerial workers	5.25	0.10	3.81	5.03%	0.55%	5.57%	7.43%	1.69%	5.35%	0.23%
White Collar high skilled (WCHS)	14.05	14.82	14.27	8.61%	2.94%	11.55%	12.73%	9.08%	10.10%	1.45%
Clerks and related workers	4.00	5.90	4.53	1.43%	0.72%	2.15%	2.12%	2.22%	1.94%	0.21%
Sales workers and shop and market service workers	15.00	3.15	11.67	5.68%	5.05%	10.73%	8.40%	15.61%	4.15%	6.58%
White Collar low skilled (WCLS)	19	9.05	16.2	7.11%	5.76%	12.88%	10.51%	17.83%	6.09%	6.78%
Agriculture animal husbandry and forestry workers	46.90	69.59	53.26	21.66%	14.52%	36.18%	32.01%	44.90%	17.07%	19.11%
Blue Collar high skilled (BCHS)	46.90	69.59	53.26	28.58%	15.28%	43.86%	42.24%	47.25%	24.13%	19.73%
Production and related workers, transport equipment operators and labour	20.04	6.53	16.25							
Blue Collar low skilled (BCLS)	20.04	6.53	16.25	21.10%	4.46%	25.56%	31.18%	13.78%	22.03%	3.52%
Services workers, workers not classifiable by occupation and unemployed workers	na	na	na	0	0	0	0	0	0	0
Craft and related trades workers				6.92%	0.76%	7.68%	10.22%	2.36%	7.06%	0.62%
Plant and machine operators, and assemblers				3.03%	0.14%	3.17%	4.48%	0.42%	3.01%	0.16%
Elementary occupations				18.07%	4.32%	22.39%	26.70%	13.36%	19.03%	3.36%
Not Stated				2.26%	3.90%	6.16%	3.35%	12.06%	6.16%	0.00%
Total	100.00	100	100.							
White Collar (WC= WCHS + WCLS)	33.05	23.87	30.47	15.72%	8.70%	24.42%	23.24%	26.90%	16.19%	8.23%
Blue Collar (BC=BCHS +BCLS)	66.94	76	70	49.68%	19.73%	69.41%	73.42%	61.03%	46.16%	23.25%
High skilled (HS= WCHS)	14	15	14	8.61%	2.94%	11.55%	12.73%	9.08%	10.10%	1.45%
Medium and Low skilled (MLS=WCLS + BCHS+ BCLS)	86	85	86	56.79%	25.50%	32.30%	78.86%	83.93%	52.25%	30.03%

Sources: Adapted from the Arab Labour Organization (2007), (2) Central Bureau of Statistics– Department of Internal Commerce and Pricing. (3) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

[25] The ILO International Standards Classification of Occupations (ISCO) are aggregated in the following way (high skilled includes only the category of WCHS, while medium and low skilled include all other categories: WCLS, BCHS and BCLS):
White-Collar high-skilled (WCHS) includes legislators, senior officials, managers, professionals, technicians and associate professionals.
White-Collar low-skilled (WCLS) includes clerks, services workers, shop and market sales workers.
Blue-Collar high-skilled (BCHS) includes skilled agricultural and fishery workers, craft and related trade workers.
Blue-Collar low-skilled (BCLS) includes plant and machine operators and assemblers and elementary occupations.

Table 10 - Sudan-population 6 years of age and over by school attendance and literacy defined by age, sex, regions and mode of living

		Currently Attended	Previously Attended	Currently + Previously Attended	Never Attended	Not Stated	Total	Literate	Illiterate	Not Stated	Total
All Sudan	**Age Group**										
	Total 6 and over	25.50%	25.38%	50.87%	44.62%	4.51%	100.00%	51.59%	45.19%	3.22%	100%
	10 -14	15.67%	1.09%	16.76%	11.77%	1.75%	30.27%	16.61%	12.14%	1.52%	30.27%
	15 -24	8.38%	6.10%	14.47%	8.69%	0.80%	23.96%	14.61%	8.75%	0.60%	23.96%
	25 – 39	1.19%	11.08%	12.27%	11.30%	0.89%	24.46%	12.57%	11.35%	0.53%	24.46%
	40 – 59	0.20%	5.67%	5.88%	8.40%	0.69%	14.97%	6.16%	8.46%	0.35%	14.97%
	60 and over	0.06%	1.43%	1.49%	4.46%	0.39%	6.34%	1.64%	4.49%	0.21%	6.34%
Total 6 & over											
All Sudan (Total 6 & over)											
	Total (MF)	25.50%	25.38%	50.87%	44.62%	4.51%	100%	51.59%	45.19%	3.22%	100%
	Male (M)	14.07%	14.49%	28.57%	19.78%	2.01%	50.35%	29.05%	19.78%	1.52%	50.35%
	Female (F)	11.42%	10.88%	22.30%	24.84%	2.50%	49.65%	22.54%	25.41%	1.70%	49.65%
	Urban	10.44%	11.89%	22.33%	7.02%	1.22%	30.57%	22.56%	7.21%	0.80%	30.57%
	Rural	14.47%	13.03%	27.50%	31.88%	2.83%	62.20%	27.90%	32.31%	1.99%	62.20%
	Nomad	0.59%	0.46%	1.04%	5.72%	0.47%	7.23%	1.13%	5.68%	0.43%	7.23%
North (Total 6 & over)											
	Total (MF)	21.82%	23.29%	45.11%	30.54%	4.51%	80.16%	45.83%	31.11%	3.22%	80.16%
	Male (M)	11.86%	13.21%	25.06%	13.31%	2.01%	40.39%	25.55%	13.32%	1.52%	40.39%
	Female (F)	9.96%	10.08%	20.05%	17.22%	2.50%	39.77%	20.28%	17.79%	1.70%	39.77%
	Urban	9.35%	11.21%	20.56%	5.31%	1.22%	27.09%	20.80%	5.49%	0.80%	27.09%
	Rural	11.88%	11.62%	23.50%	19.51%	2.83%	45.84%	23.90%	19.95%	1.99%	45.84%
	Nomad	0.59%	0.46%	1.04%	5.72%	0.47%	7.23%	1.13%	5.68%	0.43%	7.23%
South (Total 6 & over)											
	Total (MF)	3.67%	2.08%	5.76%	14.08%	0.00%	19.84%	5.76%	14.08%	0.00%	19.84%
	Male (M)	2.21%	1.29%	3.50%	6.46%	0.00%	9.97%	3.50%	6.46%	0.00%	9.97%
	Female (F)	1.46%	0.80%	2.26%	7.61%	0.00%	9.87%	2.26%	7.61%	0.00%	9.87%
	Urban	1.08%	0.68%	1.77%	1.71%	0.00%	3.48%	1.77%	1.71%	0.00%	3.48%
	Rural	2.59%	1.40%	3.99%	12.36%	0.00%	16.36%	3.99%	12.36%	0.00%	16.36%
	Nomad	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

Table 11– Sudan population 6 years of age and over currently and previously attending school by education attainment, age, sex, regions and mode of living

	Total	Without Educational Attainment	Below primary	Primary	Intermediate	Primary+ Intermediate	Secondary	Primary+ Intermediate+ Secondary	Post Secondary Diploma	University first degree	Post Graduate Diploma	Masters Degree	PH.D	Khalwa	Not Stated
All Sudan (age group)															
Total	100.00%	8.30%	42.58%	14.84%	4.86%	19.70%	12.83%	32.53%	1.10%	4.70%	0.29%	0.24%	0.09%	6.22%	3.97%
6--14	32.95%	1.24%	28.77%	0.78%	0.08%	0.87%	0.09%	0.96%	0.00%	0.01%	0.00%	0.00%	0.00%	1.05%	0.92%
15-24	28.45%	2.48%	9.51%	7.05%	0.77%	7.82%	5.01%	12.83%	0.20%	0.96%	0.04%	0.01%	0.01%	1.15%	1.27%
25-39	24.12%	3.00%	3.33%	3.87%	2.34%	6.21%	5.28%	11.49%	0.50%	2.76%	0.15%	0.11%	0.02%	1.61%	1.14%
40-59	11.55%	1.28%	0.81%	2.38%	1.45%	3.83%	2.23%	6.07%	0.33%	0.85%	0.08%	0.10%	0.04%	1.51%	0.49%
60+	2.93%	0.30%	0.15%	0.76%	0.21%	0.97%	0.23%	1.19%	0.07%	0.11%	0.02%	0.02%	0.02%	0.91%	0.15%
All Sudan (Total 6 and over)															
Total	100.00%	8.30%	42.58%	14.84%	4.86%	19.70%	12.83%	32.53%	1.10%	4.70%	0.29%	0.24%	0.09%	6.22%	3.97%
male	56.16%	4.48%	23.39%	8.31%	2.89%	11.20%	7.11%	18.30%	0.69%	2.52%	0.17%	0.16%	0.06%	4.22%	2.15%
female	43.85%	3.82%	19.18%	6.53%	1.97%	8.50%	5.73%	14.23%	0.40%	2.18%	0.11%	0.08%	0.02%	2.00%	1.82%
rural	43.89%	2.69%	15.51%	7.21%	2.58%	9.79%	7.84%	17.63%	0.68%	3.51%	0.21%	0.20%	0.06%	1.57%	1.83%
urban	54.06%	5.46%	26.04%	7.48%	2.22%	9.70%	4.91%	14.61%	0.41%	1.17%	0.07%	0.04%	0.02%	4.22%	2.02%
nomad	2.05%	0.15%	1.03%	0.15%	0.06%	0.21%	0.09%	0.29%	0.01%	0.02%	0.00%	0.00%	0.00%	0.42%	0.12%
North (Total 6 and over)															
Total	88.68%	6.50%	36.48%	13.27%	4.62%	17.89%	11.70%	29.59%	0.81%	4.58%	0.25%	0.22%	0.08%	6.19%	3.97%
male	49.27%	3.54%	19.81%	7.27%	2.72%	9.99%	6.33%	16.32%	0.49%	2.43%	0.15%	0.14%	0.06%	4.20%	2.15%
female	39.41%	2.96%	16.68%	6.00%	1.90%	7.91%	5.37%	13.28%	0.32%	2.16%	0.10%	0.08%	0.02%	1.99%	1.82%
rural	40.42%	2.25%	13.80%	6.69%	2.50%	9.18%	7.38%	16.57%	0.55%	3.44%	0.19%	0.19%	0.06%	1.56%	1.83%
urban	46.21%	4.11%	21.65%	6.43%	2.07%	8.50%	4.23%	12.73%	0.26%	1.13%	0.06%	0.03%	0.02%	4.20%	2.02%
nomad	2.05%	0.15%	1.03%	0.15%	0.06%	0.21%	0.09%	0.29%	0.01%	0.02%	0.00%	0.00%	0.00%	0.42%	0.12%
South (Total 6 and over)															
Total	11.32%	1.79%	6.10%	1.57%	0.23%	1.81%	1.13%	2.94%	0.28%	0.11%	0.04%	0.02%	0.01%	0.03%	0.00%
male	6.88%	0.94%	3.59%	1.04%	0.17%	1.21%	0.78%	1.99%	0.20%	0.09%	0.03%	0.02%	0.01%	0.03%	0.00%
female	4.44%	0.86%	2.51%	0.53%	0.07%	0.60%	0.35%	0.95%	0.08%	0.03%	0.01%	0.01%	0.00%	0.01%	0.00%
rural	3.47%	0.44%	1.71%	0.53%	0.08%	0.61%	0.46%	1.07%	0.13%	0.07%	0.02%	0.02%	0.00%	0.01%	0.00%
urban	7.85%	1.35%	4.39%	1.05%	0.15%	1.20%	0.67%	1.87%	0.15%	0.04%	0.02%	0.01%	0.00%	0.02%	0.00%

Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

Table 12 – Sudan population 6 years of age and over currently attending school by grade attending, age in single years and sex

		total			urban			rural			nomad		
		MF	M	F	MF	M	F	MF	M	F	MF	M	F
Total													
	All Sudan	100.00%	55.20%	44.80%	40.94%	21.59%	19.35%	56.76%	32.14%	24.63%	2.30%	1.47%	0.83%
	North	85.59%	46.52%	39.07%	36.68%	19.11%	17.57%	46.60%	25.93%	20.67%	2.30%	1.47%	0.83%
	South	14.41%	8.68%	5.73%	4.25%	2.47%	1.78%	10.16%	6.21%	3.95%	0.00%	0.00%	0.00%
Primary													
	All Sudan	73.59%	40.65%	32.94%	26.82%	14.12%	12.70%	44.94%	25.37%	19.56%	1.84%	1.16%	0.68%
	North	61.43%	33.49%	27.93%	23.41%	12.21%	11.20%	36.18%	20.12%	16.06%	1.84%	1.16%	0.68%
	South	12.16%	7.16%	5.00%	3.41%	1.91%	1.50%	8.76%	5.25%	3.51%	0.00%	0.00%	0.00%
Secondary													
	All Sudan	15.09%	8.42%	6.66%	7.74%	4.14%	3.60%	7.12%	4.13%	2.98%	0.23%	0.15%	0.08%
	North	13.22%	7.16%	6.05%	7.07%	3.69%	3.37%	5.92%	3.32%	2.60%	0.23%	0.15%	0.08%
	South	1.87%	1.26%	0.61%	0.67%	0.44%	0.23%	1.20%	0.82%	0.38%	0.00%	0.00%	0.00%
Post Secondary/Diploma Program													
	All Sudan	0.31%	0.20%	0.12%	0.17%	0.10%	0.07%	0.14%	0.09%	0.05%	0.01%	0.01%	0.00%
	North	0.23%	0.14%	0.09%	0.14%	0.08%	0.06%	0.08%	0.05%	0.03%	0.01%	0.01%	0.00%
	South	0.09%	0.06%	0.03%	0.03%	0.02%	0.01%	0.06%	0.04%	0.02%	0.00%	0.00%	0.00%
College													
	All Sudan	0.56%	0.31%	0.25%	0.34%	0.18%	0.16%	0.22%	0.12%	0.09%	0.01%	0.00%	0.00%
	North	0.48%	0.25%	0.23%	0.32%	0.17%	0.15%	0.16%	0.08%	0.07%	0.01%	0.00%	0.00%
	South	0.08%	0.05%	0.03%	0.02%	0.02%	0.01%	0.06%	0.04%	0.02%	0.00%	0.00%	0.00%
University													
	All Sudan	5.36%	2.75%	2.61%	3.73%	1.90%	1.83%	1.60%	0.83%	0.77%	0.03%	0.02%	0.01%
	North	5.16%	2.61%	2.55%	3.62%	1.82%	1.80%	1.51%	0.77%	0.74%	0.03%	0.02%	0.01%
	South	0.20%	0.14%	0.06%	0.11%	0.08%	0.03%	0.09%	0.06%	0.03%	0.00%	0.00%	0.00%
Master Degree													
	All Sudan	0.160%	0.090%	0.070%	0.120%	0.070%	0.050%	0.030%	0.020%	0.010%	0.000%	0.000%	0.000%
	North	0.150%	0.090%	0.060%	0.120%	0.070%	0.050%	0.030%	0.020%	0.010%	0.000%	0.000%	0.000%
	South	0.009%	0.007%	0.002%	0.004%	0.003%	0.001%	0.005%	0.003%	0.001%	0.000%	0.000%	0.000%
Ph.D Program													
	All Sudan	0.040%	0.020%	0.020%	0.030%	0.020%	0.010%	0.010%	0.010%	0.000%	0.000%	0.000%	0.000%
	North	0.040%	0.020%	0.010%	0.020%	0.010%	0.010%	0.010%	0.010%	0.000%	0.000%	0.000%	0.000%
	South	0.004%	0.002%	0.002%	0.003%	0.002%	0.001%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
Not Reported													
	All Sudan	4.89%	2.75%	2.14%	1.99%	1.06%	0.93%	2.71%	1.56%	1.15%	0.19%	0.12%	0.06%
	North	4.89%	2.75%	2.14%	1.99%	1.06%	0.93%	2.71%	1.56%	1.15%	0.19%	0.12%	0.06%
	South	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

One stylized fact on the labour market in Sudan is that since long Sudan remains a labour exporting country, especially to the Arab rich oil Gulf countries, for instance, since long many male Sudanese has worked in other Arab Gulf states, notably, the migration of high skill led to brain drain problem in Sudan.[26] Based on the conventional views in the literature on the incidence of the brain drain in the typically developing countries, in our view the main reasons for the incidence and continuation of brain in Sudan can be perceived from both country and

[26] "The term human capital flight, more commonly referred to as "brain drain", is the large-scale emigration of individuals with technical skills or knowledge. The reasons usually include two aspects which respectively come from countries and individuals. In terms of countries, the reasons may be social environment (in source countries: lack of opportunities, political instability, economic depression, health risks; in host countries: rich opportunities, comparatively good political system, developed economy, better living conditions). In terms of individual reasons, there are family influences (overseas relatives, and personal preference: preference for exploring, ambition for an improved career, etc.). Although the term originally referred to technology workers leaving a nation, the meaning has broadened into: "the departure of educated or professional people from one country, economic sector, or field for another, usually for better pay or living conditions". Brain drain is usually regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government or other organizations. It is a parallel of capital flight, which refers to the same movement of financial capital. Brain drain is often associated with de-skilling of emigrants in their country of destination, while their country of emigration experiences the draining of skilled individuals. The term brain drain was coined by the Royal Society to describe the emigration of "scientists and technologists" to North America from post war Europe. Another source indicates that this term was first used in the United Kingdom to describe the influx of Indian scientist and engineers. The converse phenomenon is "brain gain", which occurs when there is a large-scale immigration of technically qualified persons. Brain drain is common amongst developing nations, such as Africa, former colonies of the island nations of the Caribbean, and particularly in centralized economies such as former East Germany and the Soviet Union, where marketable skills were not financially rewarded. Two parties involved in brain drain are developing countries and developed countries. On the left side, because of the disadvantaged social environment (of opportunities, political instability, economic depression, health risks, etc), family influence (overseas relatives, etc), and personal preference (prefer exploring, ambitious to seek brilliant career, etc), many people in developing countries actively choose to migrate. Most of migrations from developing countries are those wealthy or skilled people, whose leaving results in brain drain and slow development of home countries. This contributes to a vicious circle for developing countries (low-income countries). On the other side, the advantaged social environment (rich opportunities, comparatively good political system, developed economy, better living conditions, etc) in developed countries attract talents from other areas, which contribute to brain drain, and finally forms a virtuous circle" See http://en.wikipedia.org/wiki/Brain_drain, accessed in November 14, 2010.

personal perspectives. From the country perspective, the main reasons are related to internal environment in Sudan due to lack of employment opportunities, political instability and economic instability; in host countries: rich employment opportunities and better living conditions. From the personal perspective the main reasons include family influences (overseas relatives, and personal preference: preference for an improved career, and better living conditions etc.). The most important reason for the continuation of brain in Sudan is particularly because the low standard of economic development led to low GDP Per capita, which implies that the high skills are not financially rewarded. The main consequences of the brain drain problem in Sudan is that the brain drain regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government or other organizations. Moreover, the brain drain implies that Sudan experiences the draining of skilled individuals and this contributes to vicious circle of underdevelopment in Sudan as a low-income country. This problem of a brain drain implies a loss to Sudan that may have amounted to a considerable percent of its professional and skilled work force. For instance over the period (2005-2008) the average share of white collar high and white collar Sudanese migrants workers represent about 8.57% and 11.39% of total Sudanese migrant workers respectively. Notably, the share of white collar high continuously increased from 5.87% to 9.42%, 7.71% and 9.83% in 2005, 2006, 2007 and 2008 respectively, and the share of white collar increased from 12.66% to 13.03%, 18% and then declined to 6.6% in 2005, 2006, 2007 and 2008 respectively- see Table 13 below.

Table 13– The Brain Drain: Sudanese working abroad with legal contracts, classified by occupation over the period (2005-2008)

	Total					Share in total (%)				
	2005	2006	2007	2008	2005-2008	2005	2006	2007	2008	2005-2008
Managers and Administrators	10	23	73	95	201	0.12%	0.28%	0.53%	0.43%	0.38%
Professionals and Scientists	293	520	691	1617	3121	3.47%	6.26%	4.99%	7.30%	5.92%
Technicians	193	239	304	465	1201	2.28%	2.88%	2.19%	2.10%	2.28%
Clerks and Accountants	111	133	199	399	842	1.31%	1.60%	1.44%	1.80%	1.60%
Sales and Services Workers	462	167	1227	499	2355	5.47%	2.01%	8.86%	2.25%	4.46%
Agriculture, Animal Husbandry and Hunting	5550	4629	6160	13518	29857	65.70%	55.76%	44.46%	61.05%	56.60%
Handicrafts Workers	328	181	678	1635	2822	3.88%	2.18%	4.89%	7.38%	5.35%
Plant and Machine Operators and Assemblers	758	458	3497	3039	7752	8.97%	5.52%	25.24%	13.72%	14.70%
Transportation Works	--	1047	--	--	1047	0.00%	12.61%	0.00%	0.00%	1.98%
Elementary Occupations	742	905	1025	877	3549	8.78%	10.90%	7.40%	3.96%	6.73%
Total	8447	8302	13854	22144	52747	100%	100%	100%	100%	100.00%
White Collar High	496	782	1068	2177	4523	5.87%	9.42%	7.71%	9.83%	8.57%
White Collar Low	573	300	1426	2481	4780	6.78%	3.61%	10.29%	11.20%	9.06%
White Collar	1069	1082	2494	1363	6008	12.66%	13.03%	18.00%	6.16%	11.39%
Blue Collar High	5878	4810	6838	14416	31942	69.59%	57.94%	49.36%	65.10%	60.56%
Blue Collar Low	1500	2410	4522	15652	24084	17.76%	29.03%	32.64%	70.68%	45.66%
Blue Collar	7378	7220	11360	18192	44150	87.34%	86.97%	82.00%	82.15%	83.70%

Source: Ministry of Labour and public service- Annual Reports

In addition, as a result of the brain drain problem which implies a shortage of professional and skilled Sudanese workers we find the recent phenomena of brain gain of foreign skilled workers which is most probably related to the effects of globalization and increasing foreign investment that is largely depending on foreign skills and foreign capital, the easy inflow and employment of foreign workers caused serious implication because of competition to substitute the local and domestic workers. The presence and high share of skilled foreign workers in total employment of foreign workers, means that majority of foreign workers were employed in high skilled jobs and

competed with the Sudanese on the available job opportunities in Sudan. Notably, the share of white collar high foreign workers increased from 61% to 80%, 89% and 88% in 2002, 2003, 2005 and 2006 respectively, and the share of white collar foreign workers increased from 77% to 90%, 96% and 91% in 2002, 2003, 2005 and 2006 respectively- see Table 14 below.

Table (14) Distribution of foreign workers by occupational classification (%) in Sudan (2002-2006)

(a)Distribution of foreign workers by occupational classification	2002	2003	2004	2005	2006
Professionals and science	51%	72%	72%	44%	31%
Legislators, senior officials and managers	7%	6%	12%	9%	11%
Technicians and associate professionals	3%	2%	na	36%	46%
Clerks	2%	1%	3%	1%	1%
Service workers and shop and market sales workers	14%	9%	9%	6%	2%
Skilled agricultural and fishery workers	na	6%	na	4%	na
Craft and related trade workers	0%	1%		na	1%
Plant and machine operators and assemblers	9.5%	3%	4%	na	2%
Elementary occupations	13.5%	na	na	na	6%
Total	100%	100%	100%	100%	100%
White Collar High	61%	80%	84%	89%	88%
White Collar Low	16%	11%	12%	7%	3%
White Collar	77%	90%	96%	96%	91%
Blue Collar High	0%	7%	0%	4%	1%
Blue Collar Low	23%	3%	4%	0%	8%
Blue Collar	23%	10%	4%	4%	9%

Source: Adapted from the Statistics of Ministry of labour.

3.3. Labour market structure, unemployment and youth unemployment problems

One stylized fact in the labour market in Sudan is the serious incidence of chronically unemployment crisis - see Table 6 above. Sudan like many other Arab countries not only faces many challenges such as low per capita GDP, low growth of labour productivity, the incidence of high poverty rate, but also of persistence of high and rising unemployment rate. This persistent unemployment problem may reflect both a general problem of growth and development and a structural problem of labour market and inequality and may lead to several serious implications on hindering the process of development and economic growth. The discussion of unemployment in Sudan is important because of higher and persistent rates of unemployment– now in excess of 20 percent. Several studies in the Sudanese literature (See: cf. Ministry of Labour Report 2004-2005) indicate the problem due to the demand side, but it is also essential to reflect the interaction between the supply- demand sides and examine the problem from both perspectives. The UNDP report (2006 pp. 92-94) shows the broad employment trends in Sudan during the 1990s and illustrates a process of jobless growth over that period and highlight the need for employment creation or generation and poverty alleviation in Sudan. Different from the several studies in the Sudanese literature we explain below four stylized facts on the unemployment problem in Sudan including the presence of several types of unemployment; the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; the high incidence of unemployment among youth population and the big mismatch between educational qualifications –supply- and labour market requirement- demand. Moreover, one advantage of our

analysis is that we explain these stylized facts using a new data on unemployment based on Sudan central bureau of statistic (2010) population census (2008).

The first stylized fact on the incidence of unemployment in Sudan is the prevalence of the several different kinds or types of unemployment including the structural, voluntary, involuntary, seasonal, frictional, cyclical, technological, youth, disguised hidden, temporary and open chronically unemployment in Sudan. The presence of seasonal unemployment in Sudan can be perceived from the fact the majority of Sudanese labour force are still hired in the agricultural sector which is characterized by relative availability of seasonal work in agriculture. In addition the high intensity of labour and family workers in the agriculture sector probably also has caused the disguised and hidden unemployment in Sudan. Furthermore, the presence of hidden and disguised unemployment can be perceived from the fact that the public sector is still the main source of job creation in the Sudan, it has a limited capacity to hire more workers but the commitment of the government to hire beyond the capacity of the public sector has caused low productivity of workers –at least compared to other Arab countries- see Table 17 below. Furthermore, the presence of frictional unemployment can be perceived from the geographical (temporary) movement of people (displaced workers and internal refuges). Moreover, the presence of cyclical unemployment can be perceived from the economic crises over the past decades in Sudan. In addition, the presence of technological unemployment can be perceived from the recent expansion in the use of technology, especially ICT in the services, notably banking sector in Sudan. We observe that the use of new technologies in the banking sector caused displacement and substitution of workers, and contributed to reduction in the number of employment opportunities. For instance, according to the results of the survey presented in the Central Bank of Sudan (2004) aimed at assessing the impacts of the use of new technologies in the Sudanese banking system in 2004, 56.5% of the respondents indicate that the use of new technologies in the banking system has some impacts on employment and resulted in the reduction of the number of workers and hence lead to an increase in unemployment in the Sudan.[27] Furthermore, the presence of youth unemployment can be perceived from the recent information which indicates the rapid increase in unemployment rate in Sudan especially the youth unemployment rate that reached around 18% of total youth in Sudan, youth unemployment also increased amongst university graduates. In addition, the presence of involuntary unemployment can be perceived from the presence of high unemployment among youth and university graduates can be interpreted partly as compulsory unemployment and partly also structural unemployment. Moreover, the presence of voluntary unemployment can be perceived from the low participation rate, especially for women (housewife). Furthermore, the presence of structural unemployment either temporary or open chronically is persistent for a long time and it can be perceived from the consequences of the structural reform and the mismatch between

educational qualifications for youth and requirement s in labour market. Moreover, the presence of open chronically – persistent – long-term unemployment, is perceived from the fact that the problem of unemployment existed throughout much of the period (1973-2008). During the last two decades the recorded employment creation was increased –cf. Table 6, employment opportunities increased from 0.2 in 1999 to 8.3 in 2006-; however, because of the labour force population –cf. Table 6 above, with the average participation rate remaining low— unemployment remained high and continued to rise –cf. Table 6 above. For example, in Sudan total labour force population continuously and rapidly increased from 16.5 in 1998 to 21.5 in 2006. The new entrance increased from 8.6 in 1998 to 11.5 in 2006 (rise in new entrance in urban area is rapid than in rural area, labour force increased rapidly in urban area from 2.4 to 2.5 to 2.6 in 1996, 1997 and 1998 respectively, labour force increased in rural area from 5.4, 5.5, 5.6 in 1996, 1997 and 1998 respectively, total labour force increased from 7.9, 8.1, 8.3 in 1996, 1997 and 1998 respectively. Despite the rise in total employed persons from 7.3 in 1998 to 9.6 in 2006 and employment opportunities from 0.2 in 1999 to 8.3 in 2006, but unemployed population was also increased from 1.3 million in 1998 to 2 million in 2006 and unemployment rates increased from 15.1% in 1998 to 17.3% in 2006 and 20.7% in 2008. Despite the rapid decline in inflation rates from 99.3 in 1996 to 40.9 in 1997, to 19.1 in 1998, to 18.2 in 1999, to 9 in 2004-2005 and to 7 in 2006- see Table 16 above, but unemployment rates rapidly increased. In the Sudan, the estimated average unemployment rate rose in 2008 to 20.7% percent from 14% during 1990-1996 and from 5.5% to 11.1% during 1973-1993. Since 1973 the rate of unemployment rapidly increased and even it is more than doubled over the past fifteen years over the period (1993-2008), for instance, the rate of unemployment increased from 10.3% in 1993 to 20.7% in 2008, which implies that the unemployment problem remains chronically persistent problem in Sudan.

The second stylized fact is the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to exogenous and endogenous causes. The exogenous causes include the implications of the internal refuges and migration due to environmental problem, draught and desertification, civil war and conflict, the influx of refugees from other neighboring countries, imbalanced development strategies, globalization and the use of foreign workers. The exogenous causes also includes other factors, for instance, the drop in world oil prices in the 1980s, the Gulf War in the early 1990s and the recent increasing move towards nationalization of jobs in the Arab Gulf countries, together caused the Arab Gulf states to cut back drastically on their expatriate workers, which resulted in the departure of the thousands of Sudanese workers based in these countries, leaving many of their possessions behind, and leading in turn to increased unemployment in Sudan. Unemployment is also caused by the exogenous environmental problems, for instance unemployment figures were affected by the severe drought that spread throughout Sudan in the 1980s. In 1983-84, for example, several

[27] See the Central Bank of Sudan (2004), p. 36.

million people migrated from the worst hit areas in both the west and the east to Khartoum and other urban areas along the Nile. Many remained in these areas once the drought had eased, living in shanty towns and contributing to unemployment or underemployment in the cities. In addition, more than 1 million people from the south migrated to the north, as a result of the civil war and famine in these areas. Moreover, the endogenous causes include the deficient demand caused by the deficient macroeconomic policies: privatization; deficient public sector, deficient private sector, structural reform, mismatch between educational output and labour market need, unemployment caused by labour market policies, educational policies, and the use of new technologies). In particular, the considerable reduction in the aggregate demand and demand for labour is caused by the liberalization, structural adjustment programs and privatization of SOEs during the 1990s that contributed to increased unemployment of the labour force (see Dagdeviren and Mahran (2004). Moreover, the deficiency and low employment of the private sectors also contributed to unemployment in Sudan (see Ministry of Labour Report 2004-2005). In addition, we find that the inflation rate is one of the very important endogenous factors that affected the unemployment problem thought it does not received adequate analysis in the Sudanese literature. For this reason, our analysis in this paper fills this gap in the Sudanese literature and discusses the correlation between inflation rates and unemployment rates. For instance, our findings imply that the increase in unemployment rates seem to be correlated with the increase in inflation rates in Sudan in the period 2000-2008. For instance, When using data and figures on unemployment rates and inflation rates over the period (1990-2008) –presented in Table 6 above- and using the ordinary least squares method to examine the correlation between inflation and unemployment rates in Sudan we find positive and significant correlation between unemployment rate and inflation rate for the case of Sudan for the period 2000-2008. We find negative significant correlation between inflation rate and unemployment rate over the period (1990-2008), and negative insignificant correlation between inflation rate and unemployment rate over the period (1990-2000). Our findings on the negative correlation between inflation rate and unemployment for the periods (1990-2008) and (1990-2000) are consistent with the studies in the literature in support of the Phillips curve.[28] But our result on the positive correlation between inflation rate and unemployment for the period (2000-2008) is opposite to the findings for the periods (1990-2008) and (1990-2000) and is different from the findings in support of Phillips curve. These contrasting findings for the periods (1990-2000) and (2000-2008) implies that the correlation between inflation rates and unemployment turned from a negative into a positive correlation in Sudan- see Table 15 below and Figures 8-13 below. The major policy implication from our findings on a significant positive correlation between inflation and unemployment rates for the case of Sudan for the period (2000-2008), implies that an increase in inflation rates have caused an increase in unemployment rates over the period (2000-2008), and

[28] Phillips curve firstly used by Phillips (1958), it indicates a negative correlation between inflation rates and unemployment rates.

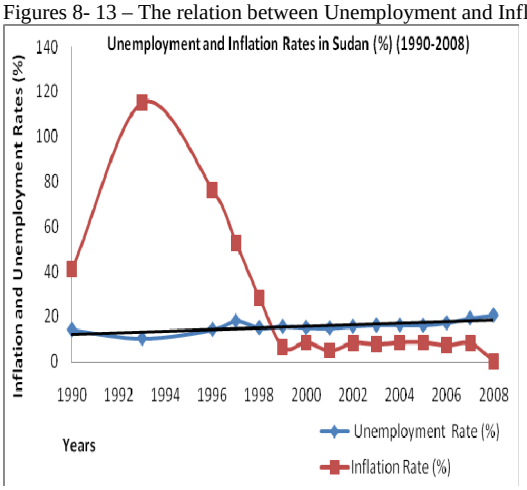
so macroeconomic policies aimed at or targeting reducing inflation rates would also contribute to reduce unemployment rates- see Table 15 below.

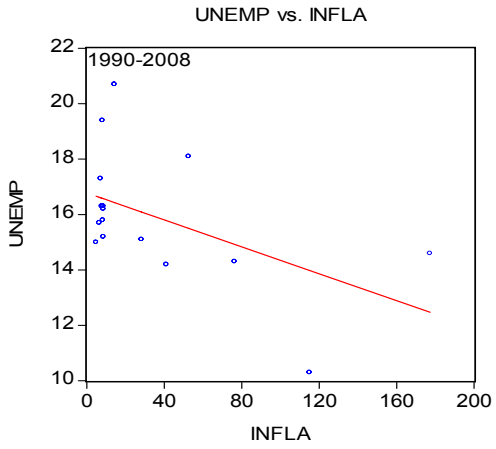
Table (15) Correlation between unemployment and inflation rates in the Sudan (1990-2008)

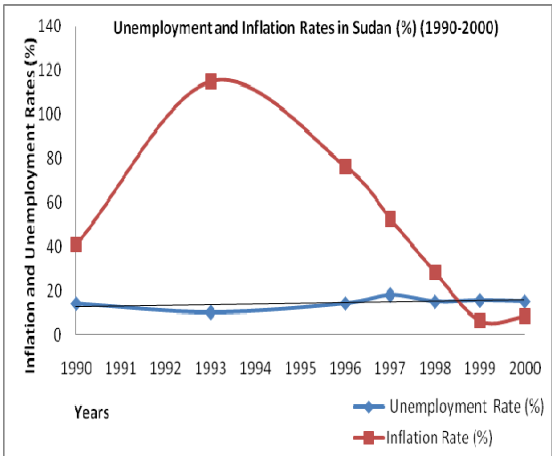
Year	SPSS			E-VIEWS		
	Coefficient (t-value)	N	R^2	Coefficient (t-value)	N	R^2
1990-2008	-0.024** (-2.192)	16	0.256	-0.024** (-2.192)	16	0.256
1990-2000	-0.015 (-1.119)	8	0.173	-0.015 (-1.1197)	8	0.173
2000-2008	0.567** (2.857)	9	0.538	0.567** (2.857)	9	0.538

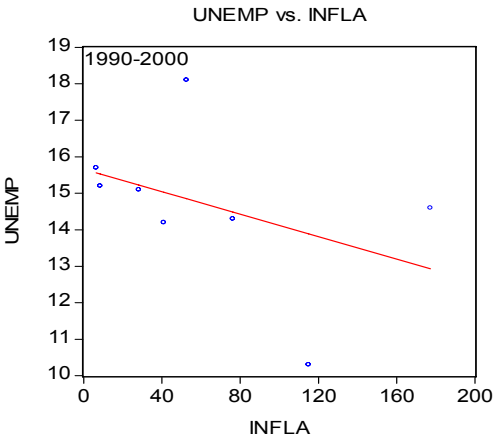
**Correlation is significant at the 0.5 level of significance.

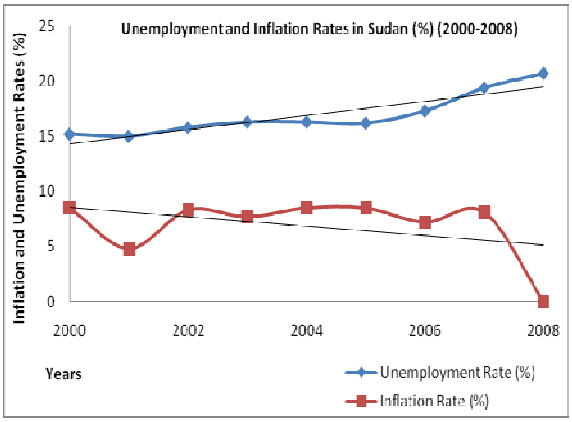
Figures 8- 13 – The relation between Unemployment and Inflation and Rates in Sudan (%) (1990-2008)

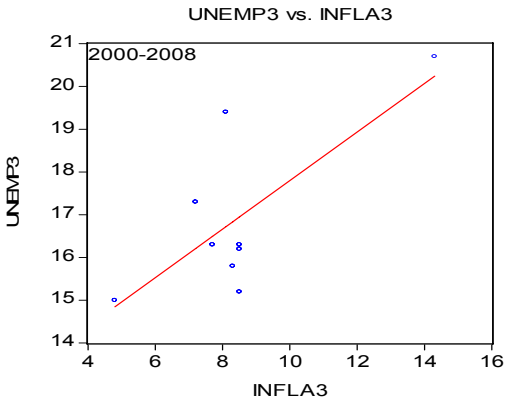












Source: Own calculation based on data obtained from (1) the Central Bank of Sudan, (2) the central bureau of statistics (3) Ministry of Finance and National Economy- and (4) Ministry of Labour and public service Annual Economic Reports (various issues)

The third stylized fact on the incidence of unemployment in Sudan is the high unemployment among youth population- see Figures 14-15 below. Sudan like many other typically developing countries not only suffered from high annual population growth rate (2.8%) and a very high rate of unemployment (20.7%) but also the population structure in the Sudan as in many other Arab countries -with a high percentage of the young- makes the situation of unemployment even more worse and difficult as most of the population is under 25 years of age," this category of young people represents 22.9 per cent of the total population in 2006 the Sudan, such a population structure has prompted the need to create more job opportunities and is anticipated to put more pressure in the future demands for jobs in the Sudan. This situation lead to a very high rate of unemployment among youth population, for example, according to Arab Labour Organization (2007) data for 2004 indicates that the high rates of youth unemployment among Sudanese youth (41.25%), female (43.25%) and male (36.64%). The estimated unemployment among Sudanese youth (41.25%) is among the highest in the world: 2.9% as much as the international world rate, 2.6% as much as in Latin America and the Pacific rate, 2.5% as much as in South East Asia rate and 1.4% as much as the Arab rate)- see Table 17 below. This worse situation has placed Sudan as the fifth worst ranked after Algeria, Iraq, Mauritania and Somalia amongst the Arab countries".[29] This situation would not only resulted in unemployment but also caused a state of mismatch and underemployment in Sudan as some people were forced to take up jobs for low compensation packages that do not suit their qualifications." (cf. Ministry of Labour Report 2004-2005).[30]

The above findings on the high rate of unemployment for youth population is also consistent with the findings based on the data from Sudan Census data for 1993 and Ministry of Labour and Public Service Migration and Labour Force Surveys 1993 and 1996 that show the presence of persistent unemployment crisis in Sudan amongst total population men and women since 1979, and rising trends of unemployment rates according to age, gender, location, regions, educational level, skill level, regions and employment status. As for the incidence of unemployment according to age groups in 1996, one should realize that for all population the highest rate of unemployment is reported amongst the youth population (15-24) it was estimated at 28.4% and for youth 15 years and over, it was estimated at 15.1%, it followed by age group (25-54) estimated at 12.1%, followed by age group above 64 estimated at 11.4%, followed by age group (55-64) estimated at 10.3%. For men the highest rate of unemployment is reported amongst the youth population (15-24) it was estimated at 22%, followed by age group (55-64), it was estimated at 12.3%, followed by age group above 64, estimated at 11.9%, followed by age group (25-54) estimated at 7.5%, followed by 15 years and over estimated at 0.2%. For women the highest rate of unemployment is reported amongst the youth population (15-24) it was

[29] See for example Arab labor organization and International Labor Organization (2007) recent statistics for 2006.

estimated at 37.6% and for youth 15 years and over, it was estimated at 23.4%, it followed by age group (25-54) estimated at 16.9%, followed by age group (55-64) estimated at 11.2%, followed by age group above 64 estimated at 6.7%. Therefore, data for 1996 implies that except for the age group (55-64) for all other age groups, open unemployment amongst women exceeded men, the data also indicates that the incidence of open unemployment according to age and gender was higher among youth population, notably, youth women were likely to be more unemployed compared to youth men. Youth unemployment was high in 1997/1998; it increased from 29.0 in 1997 to 30.8 in 1998. The distribution of unemployment according to education level indicates that for total population, unemployment is high for primary education (33.8%), followed by illiterate (29.9%), illiterate/basic (21.6%), secondary (11.2%) and above secondary (3.5%). The distribution of unemployment according to education level indicates that for men unemployment is high for primary education (33.6%), followed by illiterate/basic (26.3%), illiterate (24.1%), secondary (11.4%) and above secondary (4.4%). The distribution of unemployment according to education level indicates that for women unemployment is high for primary education (33.9%), followed by illiterate (33%), illiterate/basic (17.3%), secondary (10.9%) and above secondary (2.8%). The unemployment rate according to education level indicates that for all youth total unemployment (28.3%) is high for above secondary (48.7%), followed by secondary (35.6%), primary (34.6%), illiterate/basic (25.59%) and illiterate (23.4%). The unemployment rate according to education level indicates that for men unemployment (33.2%) is high for above secondary (43.2%), followed by secondary (24.4%), primary (22.1%), illiterate/basic (21.4%) and illiterate (20.6%). The unemployment rate according to education level indicates that for women unemployment (37.6%) is high for primary (67.2%) followed by above secondary (59.5%), secondary (43.6%), illiterate/basic (36.3%) and illiterate (25.5%). Data for 1996 on unemployment indicate that according to all educational level the structural distribution of unemployment for women is slightly different from men that coincided with the total population; in general women were likely to be more unemployed than men. Our findings based on the Sudan central bureau of statistics (2010) population census data for 2008 implies that the structure and distribution of the total population and labour force defined by age, gender, mode of living, main geographic areas and education attainment have several important implications in the employment rates and unemployment rates. Notably; we find that the total labour force, employment rates and unemployment rates for men are higher than women, for rural are higher than urban and for the north are higher than the south. Moreover, we find that the distribution of unemployment by age groups indicates that the highest unemployment is for the age group (15-24) 32.80%, it followed by the age group age group (25-39) 32.44%, age group (10-14) (13.80%), age group (40-59) (14.57%); and finally age group 60 and over (4.37%).

[30] In this paper the terms Ministry of Labor, Ministry of Labor and Public Service, Ministry of Labor and Administrative Reform are used interchangeably to refer to Ministry of Labor, because the ministry of labour is named differently in different regimes.

These findings are consistent with the findings from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender, mode of living and main geographical areas as we explained above. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender, mode of living and main geographical areas as we explained above. Moreover, we find that for the economically active population both employment and (actual) unemployment rates are higher for primary education, followed by secondary and post secondary education respectively. Furthermore, we find that for the economically inactive population the expectations of no hope to find a job (or the potential unemployment) are higher for primary education, followed by secondary and post secondary education respectively- See Table 16 below. These findings together imply the importance of education in reducing the incidence of unemployment.

Table 16- Total population, labour force, economically active population, economically inactive population, employment and unemployment for population 10 years and above defined by age, gender, mode of living, main geographical areas and educational attainment in Sudan (2008).

	Total Population	Total labour force	Total Economically Active	Total Employed	Total Unemployed	Total Unemployed	Total	REASON_REC	
							Total economically inactive	No hope to find job	Full time Student
All Sudan									
All Sudan: Age groups									
All Sudan	100.00%	100.00%	43.68%	84.07%	15.93%	100%	48.80%	10.28%	40.70%
10 -14	18.58%	18.58%	4.19%	7.08%	2.52%	15.81%	13.18%	2.78%	21.03%
15 -24	27.98%	27.98%	9.95%	17.56%	5.23%	32.80%	15.89%	3.50%	18.02%
25 – 39	28.56%	28.56%	15.98%	31.42%	5.17%	32.44%	10.13%	2.36%	1.70%
40 – 59	17.48%	17.48%	10.60%	21.93%	2.32%	14.57%	5.69%	1.74%	0.14%
60 and over	7.40%	7.40%	2.96%	6.07%	0.70%	4.37%	3.92%	0.33%	0.01%
All Sudan: Educational attainment									
No Qualifications	4.81%		6.08%	6.13%	5.18%	5.18%	1.99%	0.52%	0.77%
Primary/ Junior	11.65%		10.89%	10.99%	9.08%	9.08%	6.39%	0.57%	7.20%
Secondary	7.61%		7.77%	7.88%	5.76%	5.76%	3.70%	0.37%	4.25%
Post Secondary	3.80%		5.32%	5.39%	4.10%	4.10%	0.96%	0.18%	0.91%
Khalwa	3.45%		4.36%	4.32%	5.09%	5.09%	1.34%	0.41%	0.64%
Not stated	73.48%		71.66%	71.42%	75.97%	75.97%	36.41%	8.76%	27.71%
All Sudan									
Total	100.00%	100.00%	43.68%	84.07%	15.93%	100%	48.80%	10.28%	40.70%
Male	50.07%	50.07%	28.99%	57.23%	9.14%	57.33%	17.28%	5.57%	22.44%
Female	49.93%	49.93%	14.69%	26.84%	6.80%	42.67%	31.52%	4.71%	18.26%
Urban	31.49%	31.49%	11.83%	23.74%	3.33%	20.93%	16.72%	2.18%	17.69%
Rural	61.48%	61.48%	28.47%	53.78%	11.40%	71.57%	29.21%	7.24%	22.16%
Nomad	7.03%	7.03%	3.38%	6.54%	1.20%	7.51%	2.87%	0.86%	0.85%
North									
Total	80.58%	80.58%	30.10%	57.32%	11.59%	72.73%	43.16%	6.91%	37.07%
Male	40.41%	40.41%	22.14%	43.60%	7.08%	44.41%	14.64%	3.69%	20.20%
Female	40.17%	40.17%	7.96%	13.71%	4.51%	28.31%	28.52%	3.22%	16.86%
Urban	28.02%	28.02%	9.71%	19.54%	2.68%	16.83%	15.48%	1.58%	16.56%
Rural	45.53%	45.53%	17.01%	31.23%	7.71%	48.40%	24.81%	4.46%	19.66%
Nomad	7.03%	7.03%	3.38%	6.54%	1.20%	7.51%	2.87%	0.86%	0.85%
South									
Total	19.42%	19.42%	13.58%	26.75%	4.35%	27.27%	5.64%	3.38%	3.63%
Male	9.65%	9.65%	6.85%	13.63%	2.06%	12.92%	2.64%	1.89%	2.24%
Female	9.76%	9.76%	6.73%	13.12%	2.29%	14.35%	3.00%	1.49%	1.39%
Urban	3.47%	3.47%	2.12%	4.21%	0.65%	4.10%	1.24%	0.60%	1.13%
Rural	15.95%	15.95%	11.46%	22.55%	3.69%	23.17%	4.40%	2.78%	2.50%

Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

The fourth stylized fact on the incidence on unemployment in Sudan is that the persistence unemployment rate (especially among youth) is not only high but also show a tendency to increase over time in Sudan which is most probably related to the big mismatch between educational qualifications –supply- and labour market requirements- demand which is perceived from the observed structural change in the demand or changing trends in the share of employment over the period 1988/1989 and 2008. In particular, on average demand or priority in

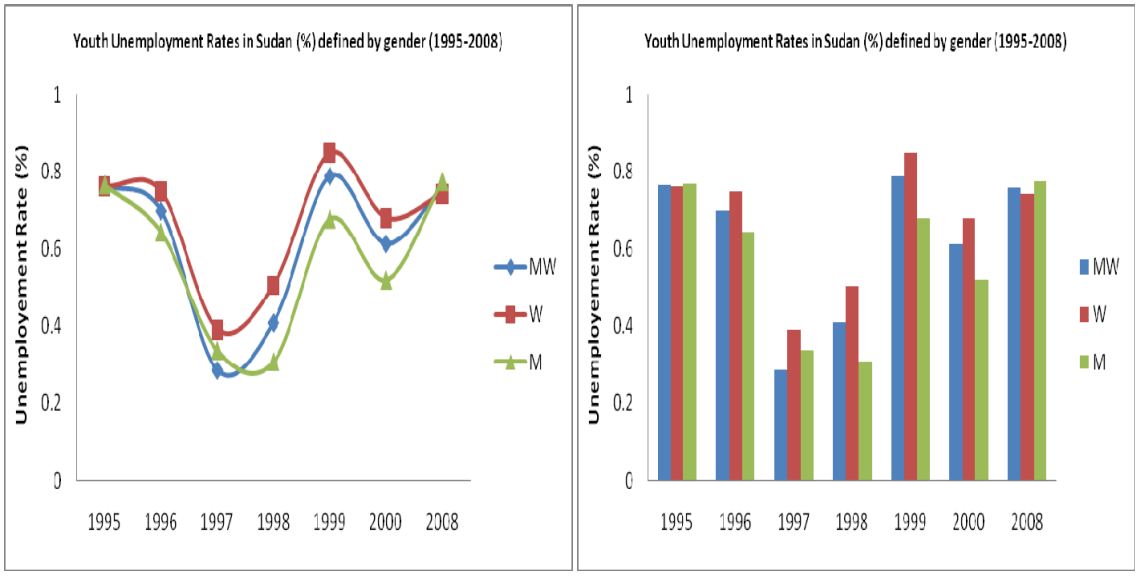
employment was concentrated among high secondary schools graduates over the period 1988/1989- 1996, but the trend changes and on average priorities in employment was turned to be concentrated in applied science colleges followed by social science and art colleges and finally higher institute diploma over the period 2001-2008. This can be attributed to changing trends and priorities from hiring high secondary school graduates to hiring university graduates, especially applied science college graduates, due to changes in higher educational policies, in particular, the higher education revolution lead to expansion in higher educational institutions and increase in student enrollment and graduation during and after 1990s. This can be interpreted as structural change in the demand for youth labour in favor of university graduates due to structural change in higher educational policies. We observe that despite the changing trend and priorities in reducing employment for higher secondary school graduates to increasing employment for university graduates. However, the structural change in the demand for youth labour in favor of increasing employment for university graduates should not hide the fact that unemployment among university graduates is surprisingly high and continue to increase. Somewhat surprisingly unemployment crisis was persistent especially among all youth graduates women and men in different field of specializations, even among graduates of applied science colleges. The majority of employment was for graduates in applied science colleges, followed by graduates in social science and art colleges and finally the minority for graduates of higher institute diploma. In general, men were likely to be more employed than women and women were likely to be more unemployed than men.

This fourth stylized fact implies the big mismatch between educational qualifications – supply- and labour market requirement- demand. An important endogenous cause of youth unemployment is the mismatch between educational (qualifications-output) and labour market requirements. Deficiency in educational policies and labour market policies and inadequate planning, assessments and monitoring of policies to create consistency between attained and required education lead to serious mismatch between educational attainment and labour market requirements. To elaborate the mismatch and unemployment amongst university graduates we utilize the figures on registration and employment obtained from the federal public service recruitment board and we use the figures on registration to refer to supply of university graduates labour and use the figures on employment to refer to demand for university graduates labour, we calculate the differences between registration and employment to refer to the differences between supply of and demand for university graduates and to define unemployment, then we divide the figures on unemployment by the figures on registration to calculate the unemployment rates for university graduates.[31] We find that unemployment amongst university graduates in all subjects

[31] One limitation is that the use of figures on registration and employment to refer to supply of and demand for university graduates labor respectively may be somewhat inaccurate and underestimate the actual figures on supply of and demand for university graduates, because not all university graduates looking for jobs are registered for the federal public service recruitment board and also because figures on employment may include university graduates unregistered for the federal public service recruitment board.

or fields of specializations is persistent and high for more than two decades over the period 1984/85 and 2008. In particular, persistent and high unemployment rates were mostly amongst theoretical, social science and art colleges graduates and technical education high institute (diploma) graduates. Majority of employed graduates were within applied science colleges graduates, but this should not hide the fact that unemployment among this category is surprisingly also very high. This implies mismatch between attained education (educational policies) and required education in labour market (labour market policies) - see Figures 14-15 and Tables 18-20 below.

Figures 14-15- Youth Unemployment Rates in Sudan (%) defined by gender (1995-2008)



Source: Own calculations based on data from the federal public service recruitment board- Statistics and Research Administration

We find that the high unemployment is persistent amongst the university graduates with different fields of specializations over the period 1984/85-2008, for example, on average the rates of unemployment for all fields of specialization was estimated at 73%, 82%, 78%, 81%, 76%, 69%, 28%, 41%, 78%, 61% and 76% in 1984/85, 1985/1986, 1986/87, 1987/88, 1995, 1996, 1997, 1998, 1999, 2000 and 2008 respectively - see Tables 18-19-20 below. In particular, for applied science colleges unemployment estimated at 64%, 85%, 75%, 48%, 40%, 75% in 1984/85, 1985/1986, 1986/87, 1987/88, 2000 and 2008 respectively. As for social science and art colleges, unemployment estimated at 88%, 66%, 76%, 90%, 82%, 93% and 84% in 1984/85, 1985/1986, 1986/87, 1987/88, 1990/91, 2000 and 2008 respectively. As for higher institute diploma, unemployment estimated at 74%, 93%, 84%, 75%, 49% and 88% in 1984/85, 1985/1986, 1986/87, 1987/88, 1990/91 and 2000 respectively- see Table 20 below.

Concerning the share of unemployment for university graduates for the period 1988/1989 – 2006, on average the share of employment for applied science colleges in total employment is changing and estimated at 37%, 63%, 41%, 19%, 12%, 19%, 18%, 18%, 2%,

52%, 74%, 59%, 81%, 79%, 73%, 75%, 88%, 77%, 90% and 81% for the years 1988/1989, 1989/1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. On average the share of employment for social science and art colleges in total employment is changing and estimated at 55%, 22%, 54%, 31%, 37%, 17%, 75%, 9%, 1%, 13% 14%, 20%, 8%, 21%, 11%, 11%, 6%, 15%, 6% and 10% for the years 1988/1989, 1989/1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. On average the share of employment for higher institute diploma in total employment is changing and estimated at 8%, 15%, 4%, 3%, 2%, 5%, 1%, 0.1%, 9%, 2%, 4%, 2%, 0.4%, 0.35%, 0.3%, and 2% for the years 1988/1989, 1989/1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2003, 2004, and 2006 respectively. As for high secondary school, the average share of employment for high secondary school in total employment is changing and estimated at 46%, 48%, 62%, 1%, 72% 96%, 29%, 10%, 17%, 10%, 13%, 3%, and 5% for the years 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2003, 2007 and 2008 respectively. One should observe the changing trends in the share of employment over the period 1988/1989 and 2006. In particular, on average priorities in employment was concentrated among high secondary schools graduates over the period 1988/1989- 1996, but the trend changes and on average priorities in employment was turned to be concentrated in applied science colleges followed by social science and art colleges and finally higher institute diploma over the period 2001-2006- see Table 18 below. This can be attributed to changing trends and priorities from hiring high secondary school graduates to hiring university graduates, especially applied science college graduates, due to changes in higher educational policies, in particular, the higher education revolution lead to expansion in higher educational institutions and student enrollment during 1990s.

In 2000 unemployment was persistent among all graduates women and men in different fields of specializations. For all graduates all field of specialization only 35% of graduates were employed and 65% were unemployed, in particular, only 29% of women were employed, but 71% of women were unemployed, only 42.5% of men were employed, but 57.5% of men were unemployed, women are likely to be more unemployed than men. For applied science colleges 56% of women were employed, but 44% of women were unemployed, 64.5% of men were employed, but 35.5% of men were unemployed, women are likely to be more unemployed than men. For social science and art colleges, only 6% of women were employed, but 94% of women were unemployed, only 8% of men were employed, but 92% of men were unemployed, women are likely to be more unemployed than men. For higher institutes (diploma) only 7% of women were employed, but 93% of women were unemployed, only 18% of men were employed, but 82% of men were unemployed, women are likely to be more unemployed than men. Over the period 2000-2008, majority of employment was for graduates in applied science colleges (81%, 75%, 77%, 73%, 78%, 88%, 76%, 90% and 81%), followed by graduates in social science and

art colleges (8%, 20%, 9%, 11%,11.4%, 6.4%, 14.7%, 6% and 10%), followed by expertise (0%, 0%, 0%, 0%, 6.1%, 1.1%, 1.1%, 1.2% and 4.7%), followed by the secondary school graduates (10%, 5%, 13.4%, 13.3%, 4.1%, 4.3%, 5.3%, 2.9% and 4.8%) and finally minority for graduates of higher institutes (diploma) (1.4%, 0.4%, 0.5%, 0.3%, 0.3%, 0%, 2.3% , 0% and 0%) in 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. In 2000, for applied science colleges 60.4% of graduates were employed but 40% of graduates were unemployed, for social science and art colleges only 7% of graduates were employed, but 93% of graduates were unemployed and for higher institutes (diploma) only 12% of graduates were employed but 88% of graduates were unemployed. This implies that unemployment–namely for women-is high among the graduates of social science and art colleges and higher institutes (diploma).[32] In 2001, majority of employment was for graduates in applied science colleges (75%), followed by graduates in social science and art colleges (20%), and finally minority for graduates of higher institute diploma (5%). In 2004, majority of employment was for graduates in applied science colleges (78%), followed by graduates in social science and art colleges (11.3%), followed by expertise (6.1%), followed by the secondary graduates (4.1%) and finally followed by minority for graduates of higher institutes diploma (0.3%). In 2005, majority of employment was for graduates in applied science colleges (88%), followed by graduates in social science and art colleges (6.4%), followed by the secondary graduates (4.3%) and finally followed by minority of expertise (1.1%). In 2006, majority of employment was for graduates in applied science colleges (76%), followed by graduates in social science and art colleges (14.7%), followed by the secondary graduates (5.3%), followed by graduates of higher institute diploma (2.3%) and finally followed by minority of expertise (1.1%). In 2007, majority of employment was for graduates in applied science colleges (90%), followed by graduates in social science and art colleges (6.1%), followed by the secondary graduates (2.9%), followed by expertise (1%) and finally without any employment for higher institute diploma graduates (0%). In 2008, majority of employment was for graduates in applied science colleges (81%), followed by graduates in social science and art colleges (10%), followed by the secondary graduates (5%), followed by expertise (5%) and finally without any employment for higher institute diploma graduates (0%). see Table 19 below. Over the period 2000-2008, the distribution of employment for graduates of all fields of specializations by gender indicates that men are likely to be more employed than women over the period (2000-2004, 2006), whereas the opposite is true for the period (2005, 2007-2008). For instance, the distribution of employment for graduates of all fields of specializations for men (52%, 52%, 52%, 52%, 51%, 42%, 55%, 38% and 43%) and for women (48%, 48%, 48%, 48%, 49%, 58%, 47%, 49%, 58%, 45%, 62% and 57%) in 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. Over the period 2000-2008, the distribution of employment for graduates of applied science colleges and fields of specializations by gender

[32] See Sudan Federal Public Service Recruitment Board- Statistics and Research Administration

indicates that men are likely to be more employed than women over the period (2000-2004), whereas the opposite is true for the period (2005-2008). For instance, the distribution of employment for graduates of applied science colleges and fields of specializations for men (53%, 55%, 54%, 51%, 48%, 41%, 48%, 36% and 41%) and for women (47%, 45%, 46%, 49%, 52%, 59%, 52%, 64% and 59%) in 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. Over the period 2000-2008, the distribution of employment for graduates of art and social sciences colleges and fields of specializations by gender indicates that men are likely to be more employed than women over the period (2004,2006- 2007), whereas the opposite is true for the period (2000-2003, 2005, 2008). For instance, the distribution of employment for graduates of art and social sciences colleges and fields of specializations for men (39%, 46%, 36%, 49%, 61%, 43%, 80%, 56% and 39%) and for women (61%, 54%, 64%, 51%, 39%, 57%, 20%, 44% and 61%) in 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. Over the period 2000-2006, the distribution of employment for graduates of high institutes (diploma) indicates that men are likely to be more employed than women, for instance, the distribution of employment for graduates of high institutes (diploma) for men (65%, 58%, 73%, and 85%) and for women (35%, 42%, 27% and 15%) in 2000, 2001, 2004 and 2006 respectively. Over the period 2004-2008, the distribution of employment for graduates of expertise indicates that men are likely to be more employed than women, for instance, the distribution of employment for graduates of expertise for men (67%, 75%, 81%, 65% and 75%) and for women (33%, 25%, 19%, 35% and 25%) in 2004, 2005 and 2006 respectively. Over the period 2000-2008, the distribution of employment for graduates of secondary school indicates that men are likely to be more employed than women, for instance, the distribution of employment for graduates of secondary school for men (59%, 42%, 48%, 56% 54%, 52%, 61%, 54% and 57%) and for women (41%, 58%, 52%, 44%, 46%, 48%, 39%, 46% and 43%) in 2000, 2001, 2003, 2004, 2005, 2006, 2007 and 2008 respectively. see Table 19 below.[33]

Over the period (2000-2008) unemployment increased from about (61.2%, 68.1%, 51.9%) in 2000 to about (75.7%, 74.2%, 77.5%) in 2008 for total, women and men graduates of all fields of specialization respectively. Over the period (2000-2008) unemployment increased from about (39.6%, 43.7%, 35.3%) in 2000 to about (74.6%, 72.1%, 77.4%) in 2008 for total, women and men graduates of applied science colleges and fields of specializations respectively. Over the period (2000-2008) unemployment decreased from about (93.1%, 93.6%, 92.4%) in 2000 to about (84%, 81.7%, 86.6%) in 2008 for total, women and men graduates of art and social sciences colleges and fields of specializations respectively. Over the period (2000-2008) unemployment increased from about (88.4%, 93%, 82%) in 2000 to about (100%, 100%, 100%) in 2008 for total, women and men for graduates of high institutes (diploma) respectively. Over the period (1995-2000) the distribution of unemployment by gender implies that for all fields of

[33] See Sudan Federal Public Service Recruitment Board- Statistics and Research Administration.

specializations, applied science colleges and social sciences colleges and fields of specializations women are likely to be more unemployed than men. Whereas somewhat surprisingly, the opposite is true in 2008 as the distribution of unemployment by gender implies that for all fields of specializations, applied science colleges and social sciences colleges and fields of specializations men are likely to be more unemployed than women- see Table 20 below. Therefore, these findings provide further evidences on the serious and increasing trend of youth unemployment, notably unemployment of university, college and higher institute diploma in Sudan over the period (2000-2008). This implies the urgent need for implementation of sound policies to address the unemployment problem and increase employment opportunities in Sudan.

4. Conclusions

This paper explains the the general political context, socioeconomic characteristics of Sudan, and strategic problems for development in the Sudan and discusses the strategic problems facing the labour market in the Sudan and highlights the need for skill upgrading and development.

We begin by explaining the general socio-economic characteristics of Sudan economy, We explain several stylized facts on the labour market, First we explain the relation between the structure of labour market and the demographic structure, participation rates and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problem in Sudan. We show that the differences in the structure and distribution of the total population defined by age, gender, mode of living and main geographic areas have several important implications in the structure of labour market, notably; we find that the labour force, participation rates, economic activities, skill level, employment rates and unemployment rates for men are higher than women, for rural are higher than urban and for the north are higher than the south.

Different from the several studies in the Sudanese literature we examine in detailed four stylized facts on the unemployment problem in Sudan including the presence of several types of unemployment; the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; the high incidence of unemployment among youth population and the big mismatch between educational qualifications –supply- and labour market requirement- demand. Moreover, one advantage of our analysis is that we explain these stylized facts using a new data on population, employment and unemployment based on Sudan central bureau of statistic (2010) the Fifth Sudan Population and Housing Census (2008).

The major policy implication from our findings indicate that since the unemployment crisis is related or linked to the endogenous and exogenous causes explained above, therefore, reducing unemployment and enhancement of employment creation are most probably related or

linked to several important factors and so policies intervention should deal with these endogenous and exogenous reasons or causes. The concerned parties in the solution of unemployment problem in the Sudan not only include the role of government and public sector, but also essential roles for the private sector and non-governmental organization as well as the civil society. This implies that one possible policies intervention for reducing unemployment and enhancement of employment creation are related or linked to increase employment and job opportunities in the public and government sector and increase employment and job opportunities in the private sector and improve of work conditions and employment policies and improve the roles and functions of the committee or board of recruitment. In addition to improvement of the quality of educational policies and improve the consistency (match) between educational qualifications (output) and labour market requirements. One major policy implication from our result implies that an increase in unemployment rates is positively and significantly correlated to an increase in inflation rates over the period (2000-2008), and so macroeconomic policies aimed at or targeting reducing inflation rates would also contribute to reduce unemployment rates. Therefore, macroeconomic policies should be used to reduce inflation in order to reduce unemployment in Sudan. Other policies include reducing the use of foreign workers and the influx of foreign refuges. Reduce the internal migration by avoiding civil war and conflict and solving of political problems and achieving political stabilization, ensure equity and fairness in the labour market. Attract foreign capital for the creation of new employment opportunities for domestic and local workers and upgrading skill levels. Create more job opportunities for poor by enhancing small and medium scale enterprises and provide unemployment insurance for poor. Enhance small and family projects. Implement balanced development strategies and improve of work conditions and availability of infrastructure and offer incentives to encourage work in the far states and finally, the use of oil revenues to create more and new employment opportunities for domestic workers in Sudan. It is important to realize that the unemployment crisis cannot be managed in a sustainable way through increased employment in an already inflated public sector and productive employment must be generated mostly in the private sector. Dealing with unemployment crisis and meeting the poverty alleviation challenge requires actions in wide-ranging areas of structural reforms to improve the business environment, encourage private sector investment, stimulate productivity growth, and enhance efficiency. Implementation of plans simultaneously targeting reducing unemployment and poverty, for instance, provision of more employment opportunities and poverty alleviation are related to improving infrastructures and facilities of value to the whole society, using labour-intensive methods or schemes to generate employment for large numbers of poor people as well as mobilizing small, informal enterprises where many of the poorest workers are concentrated. These strategies expected to also lead to sustainable job creation and therefore poverty alleviation.

Table 17 – Total Population, Labour Force, Participation Rates, Unemployment Rates (in percent of total labour force), and Labour productivity in industrial sector in Sudan compared to Arab countries and World region (1990-2006)

Country	Population [c]			Labour Force [c]	Participation rate (15-24) [c]			%Youth Unemployment in total unemployment (15-24 [c])			Youth Unemployment (%)(15-24) [c]			Unemployment rate (%)						Labour productivity (US $) [c]		
	Total	Growth rate (%)	% of Youth (15-24)	MF 15 years and over (%)	M (%)	F (%)	MF (%)	M (%)	F (%)	MF (%)	M (%)	F (%)	MF (%)	1990 [a]	1995 [a]	2000 [a]	2001 [a]	2002 [a]	2005-2006 [c]	2002	2003	2004
Bahrain	724,695	1.68	15	66.4	55.2	25.9	41.5	55.9	51.2	54	27.5	17.8	20.7	na.	10.0	12.0	12.0	20.5	3.40	35,493	39,814	47,787
Kuwait	2,457,000	1.32	19.6	76	38.3	30.22	34.6	54.32	38.3	46.32	13.3	24.4	23.3	0.5	1.5	2.1	2.3	7	1.67	94,462	118,659	152,926
Qatar	789,392	1.6	21.1	78.84	28.3	7	17.5	54.7	36.3	45.2	11.6	50.9	17	na.	na.	Na.	2.7	na	2.00	370,006	435,417	512,413
UAE	4,105,000	1.72	16.2	80.76	53.1	20.4	38.5	45.8	53.6	47	6.4	5.7	6.3	na.	na.	Na.	2.3	na	2.30	125,921	150,911	186,310
Average high income	2,019,022	2	18	76	44	20.9	33	52.7	44.9	48.1	14.7	24.7	17	0.5	1.5	2.1	2.43	7	1.99	196796.3	234995.7	283883
Oman	2,416,000	1.5	19.5	38.6	48	23.3	36	na	na	Na	17.7	22.3	19.7	na	na	Na	5	na	7.50	120,441	125,215	144,289
KSA	23,118,994	2.4	18.2	50.7	28.3	7	17.5	62.9	54.1	60.4	24.4	31.6	25.9	Na.	Na.	5.9	Na.	25	6.05	122,429	151,255	187,827
Algeria	32,786,000	1.6	22.6	41	20.3	16.15	21.5	79.6	20.4	70.1	47.2	56.4	45.6	19.8	28.0	27.3	28.5	31	15.30	10,180	12,727	16,400
Egypt	69,997,000	1.94	21.1	49.7	38.3	16.4	28.2	63.9	57	60.3	18.4	37.2	25.8	8.6	9.6	7.9	7.6	12	10.70	3,836	3,624	3,603
Lebanon	3,794,000	1.07	20.9	45.1	65	35.2	48.3	57.44	39.2	55.4	22.8	17.4	21.3	na	na	Na	Na	8.5	8.20	3,841	3,949	4,243
Morocco	30,991,000	1.5	20.2	52.6	63.8	24.5	44.9	37.59	31.7	35.87	16.2	14.4	15.7	15.4	16.0	13.7	12.8	19	15.70	3,106	3,476	3,901
Syria	18,269,000	2.6	20.2	44.9	63	19.85	42.5	58.92	54.5	57.19	16	33.7	19.9	na	na	Na	Na	20	8.08	3,689	3,468	3,852
Tunisia	10,130,000	1.08	20.8	46.3	18.1	25.94	20.2	64.25	67.3	65.21	28.9	20.2	26.5	16.2	16.2	15.5	15.0	15.4	14.20	4,694	5,064	5,389
Libyan Arab Jamahiriya	6,097,000	3.1	20.9	42.5	16	6.04	11.5	46.32	52.2	47.34	28.3	34.3	27.4	na	na	Na	30		10.00	30,755	41,877	46,322
Djibouti	600,000	3	20.2	64	48.7	24.3	37.5	35	46.2	62.2	30.5	41.5	37.8	na.	na	50	na	8.5	50.00	874	876	808
Jordan	5,595,000	2.3	21.6	37.8	46	10.05	28.9	64.07	69.2	66.01	35.5	55	38.9	16.8	14.7	14.7	14.7	16	13.00	11,522	11,814	13,327
Iraq	27,954,000	3	22.2	49	67.1	4.8	36	68.35	49.4	62.35	47.4	49.3	45.4	na	na	Na	na	19.8	29.50	16,179	11,397	21,543
Palestine	4,106,000	3.4	21.2	6760	44.3	7.3	26.2	34.1	42.4	35	33.6	30.7	33.1	na	na	Na	25.5	50	23.50	na	na	na
Average medium income	18,142,615	2	20.7	563	43.6	16.99	30.71	56.04	48.63	56.45	28.22	34.15	29.46	15.36	16.9	19.29	17.39	20.47	16.29	27628.8	31228.5	37625.3
Somalia	10,082,000	1	20.2	72	47.6	29.4	42.2	37.8	44.3	61.5	31.3	47.4	43.5	na.	na	na	na	10	25.00	0	0	0
Yemen	21,867,800	3.5	21.4	46.3	51.5	19.9	36.1	57.35	55.8	57.58	20.5	13.5	18.7	na.	30	11.5	na		16.30	6,470	7,489	8,743
Mauritania	3,045,000	2.4	21.4	47.1	35.3	22.45	31.3	58.31	59.1	60.25	48.7	41.3	44.3	na.	26.0	21	na	20.9	22.00	3,008	3,470	4,598
Average low income	17,597,950	2	21.5	54	37.4	19.5	30	55	55.4	59.7	34.3	36.4	37	16.6	23.53	14.83	11.6	16.53	20.45	2886.5	3324.3	4012
Average Arab states	14,967,709	2	20.35	373	42.44	18.199	31.03	55.15	49.23	55.43	26.8	32.78	28.48	13.41	16.66	16.13	13.08	18.89	14.42	48448.7	56642	68349.4
Total Arab	314,321,881	2.4	20.7	53.3	42.4	18.2	31	50.59	48.6	51.62	26.4	30.8	30									
Middle East and North Africa													25.6	12.7	13.8	12.7	12.6	na	na	na	na	na
Sub Saharan Africa													21.1									
South East Asia													16.4									
Latin America and Caribbean													16									
World													14.4									

Sources: (a) World Economic Outlook (WEO). September 2002; The World Bank; staff estimates. I/ Simple Averages: nationals only for Bahrain. (b) Figures on inflation for 2005 are obtained from IMF (2005) International Economics, September, 2005 (c) Arab Labour Organization (2007) - Note figures for all countries refer to 2005, except for Jordan figure refers to 2006.

Table (18) - Registration and employment of total university, college and secondary school graduates for the years 1988/1989 – 2009) defined by specialization field

	1988/1989	1989/1990	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2003	2004	2005	2006	2007	2008	2009
(A) Applied Science Colleges																					
Employment	502	389	655	750	534	782	1940	380	631	874	1370	677	1541	2277	2269	2588	3775	2972	4776	2385	
% employed/total employed	37.00%	63.00%	41.40%	19.00%	12%	19.00%	18.00%	18.00%	2.00%	51.90%	74.30%	59.33%	80.93%	79.00%	73.15%	75%	88.00%	77%	89.96%	80.6%	
(B) Social Science and Arts Colleges																					
Employment	744	134	851	1229	1623	706	8063	193	413	227	259	228	147	598	331	376	273	571	326	293	
% employed/total employed	55%	22%	53.79%	31%	37%	17%	75%	9%	1%	13.48%	14.05%	19.98%	7.72%	21%	10.67%	11%	6 %	15%	6.14%	9.90%	
(C) Expertise																					
Employment	0.00%	0.00%	0.00%	0.00%	0%	0.00%	0.00%	0.00%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54	140	
% employed/total employed	0.00%	0.00%	0.00%	0.00%	0%	0.00%	0.00%	0.00%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.02%	4.73%	
(D) Higher Institutes (Diploma)																					
Employment	102	93	76	194	111	90	554	33	4949	144	34	44	26	12	11	11	na	91	0.00%	0.00%	
% employed/total employed	7.60%	15.00%	4.80%	4.00%	3%	2.00%	5.00%	1.00%	0.10%	8.55%	1.84%	3.86%	1.37%	0.40%	0.35%	0.32%		2.3%	0.00%	0.00%	
(E) Secondary School																					
Employment	na	na	0.00%	1829	2069	2593	134	1543	29296	493	181	192	190	na	411	na	na	na	153	141	
% employed/total employed	na	na	0.00%	46%	48%	62%	1.3%	72%	96.5%	29.28%	9.82%	16.83%	9.98%	na	13.25%	na	na	na	2.88%	4.77%	
Total			1582							1684	1844	1141	1904		3102				5309	2959	8143
Registration	na	na		na	na	na	na	na	na					7661	13390	15019	14155	17141			
Employment	1348	616		4002	4337	4171	10691	2149	30373					2888	3201	3463	4280	3882			
% employ/registered	na	Na		na	na	na	na	na	na					0.38	0.24	0.23	0.30	0.23			
% unemployed	na	Na		na	na	na	na	na	na					0.62	0.76	0.77	0.70	0.77			

Source: Adapted from the federal public service recruitment board- Statistics and Research Administration.

Table (19) - Distribution of employment of university, college, higher institute, experts and secondary school graduates for the years (1995 – 2008) defined by gender and specialization field

	1995-2001																				
	1995			1996			1997			1998			1999			2000			2001		
	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM
Applied																					
total	637	585	1222	583	365	948	1049	361	874	778	592	1370	403	274	677	810	731	1541	1255	1022	2277
% in total	52.13%	47.87%	49.80%	61.50%	38.50%	62.08%	120.02%	41.30%	51.90%	56.79%	43.21%	74.30%	59.53%	40.47%	59.33%	52.56%	47.44%	80.93%	55.12%	44.88%	74.80%
Theoretical																					
total	541	626	1167	265	261	526	118	109	227	181	78	259	105	123	228	57	90	147	273	325	598
% in total	46.36%	53.64%	47.56%	50.38%	49.62%	34.45%	51.98%	48.02%	13.48%	69.88%	30.12%	14.05%	46.05%	53.95%	19.98%	38.78%	61.22%	7.72%	45.65%	54.35%	19.65%
higher institute																					
total	32	33	65	22	31	53	81	63	144	25	9	34	23	21	44	17	9	26	7	5	12
% in total	49.23%	50.77%	2.65%	41.51%	58.49%	3.47%	56.25%	43.75%	8.55%	73.53%	26.47%	1.84%	52.27%	47.73%	3.86%	65.38%	34.62%	1.37%	58.33%	41.67%	0.39%
Secondary																					
total							267	172	493	69	112	181	103	89	192	113	77	190	66	91	157
% in total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.16%	34.89%	29.28%	38.12%	61.88%	9.82%	53.65%	46.35%	16.83%	59.47%	40.53%	9.98%	42.04%	57.96%	5.16%
Total																					
total	1210	1244	2454	870	657	1527	797	705	1684	1053	791	1844	634	507	1141	997	907	1904	1601	1443	3044
% in total	49.31%	50.69%	100.00%	56.97%	43.03%	100.00%	47.33%	41.86%	100.00%	57.10%	42.90%	100.00%	55.57%	44.43%	100.00%	52.36%	47.64%	100.00%	52.60%	47.4%	100 %
	2002-2008																				
	2002			2003			2004			2005			2006			2007			2008		
Field of specialization	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM	M	W	WM
Applied																					
total	643	551	1194	1161	1108	2269	1248	1340	2588	1547	2228	3775	1434	1538	2972	1733	3043	4776	975	1410	2385
% in total	53.85%	46.15%	77.23%	51.17%	48.83%	73.15%	48.22%	51.78%	78.09%	40.98%	59.02%	88.20%	48.25%	51.75%	76.56%	36.29%	63.71%	89.96%	40.88%	59.12%	80.60%
Theoretical																					
total	49	88	137	163	168	331	229	147	376	117	156	273	458	113	571	183	145	326	114	179	293
% in total	35.77%	64.23%	8.86%	49.24%	50.76%	10.67%	60.90%	39.10%	11.35%	42.86%	57.14%	6.38%	80.21%	19.79%	14.71%	56.13%	44.48%	6.14%	38.91%	61.09%	9.90%
Experts																					
total							137	66	203	36	12	48	36	8	44	35	19	54	105	35	140
% in total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	67.49%	32.51%	6.13%	75.00%	25.00%	1.12%	81.82%	18.18%	1.13%	64.81%	35.19%	1.02%	75.00%	25%	4.73%
higher institute																					
total	6	2	8	7	4	11	8	3	11	–	–	–	77	14	91	–	–	–	–	–	–
% in total	75.00%	25.00%	0.52%	63.64%	36.36%	0.35%	72.73%	27.27%	0.33%	–	–	–	84.62%	15.38%	2.34%	–	–	–	–	–	–
Secondary																					
total	99	108	207	232	179	411	74	62	136	96	88	184	125	79	204	82	71	153	81	60	141
% in total	47.83%	52.17%	13.39%	56.45%	43.55%	13.25%	54.41%	45.59%	4.10%	52.17%	47.83%	4.30%	61.27%	38.73%	5.26%	53.59%	46.41%	2.88%	57.45%	42.55%	4.77%
Total																					
total	797	749	1546	1611	1491	3102	1696	1618	3314	1796	2484	4280	2130	1752	3882	2033	3278	5309	1275	1684	2959
% in total	51.55%	48.45%	100.00%	51.93%	48.07%	100.00%	51.18%	48.82%	100.00%	41.96%	58.04%	100.00%	54.87%	45.13%	100.00%	38.29%	61.74%	100.00%	43.09%	56.91%	100.%

Source: Adapted from the federal public service recruitment board- Statistics and Research Administration.

Table (20) – Registration, employment and unemployment of university, college, higher institutes, experts and secondary school graduates for the years (1984/1985 – 2008) defined by gender and specialization field

	1984/1985	1985/1986	1986/1987	1987/1988	1995			1996			1997			1998			1999			2000			2008		
Employment					MW	W	M	MW	W	M	MW	W	M	MW	W	M	MW	W	M	MW	W	M	MW	W	M
(A) Applied Science Colleges																									
registration	2261	4162	3863	1321	1941	1020	921	1415	580	835	1049	439	610	1766	879	887	1747	838	909	2542	1290	1252	9373	5061	4312
Total %					18.7%	52.6%	47.4%		41.0%	59.0%	44.5%	41.8%	58.2%	56.7%	49.8%	50.2%	32.6%	48.0%	52.0%	51.9%	50.9%	49.1%	76.9%	54.0%	46.0%
employment	823	623	950	687	1222	585	637	948	365	583	874	361	513	1370	592	778	677	274	403	1536	728	808	2385	1410	975
Total %					49.8%	47.9%	52.1%	62.1%	38.5%	61.5%	51.9%	41.3%	58.7%	74.3%	43.2%	56.8%	59.3%	40.5%	59.5%	80.9%	47.4%	52.6%	80.6%	59.1%	40.9%
% employ/ registered	36%	15%	25%	52%	63.0%	57.4%	69.2%	67.0%	62.9%	69.8%	83.3%	82.2%	84.1%	77.6%	67.3%	87.7%	38.8%	32.7%	44.3%	60.4%	56.3%	64.7%	25.4%	27.9%	22.6%
% unemployed	64%	85%	75%	48%	37.0%	42.6%	30.8%	33.0%	37.1%	30.2%	16.7%	17.8%	15.9%	22.4%	32.7%	12.3%	61.2%	67.3%	55.7%	39.6%	43.7%	35.3%	74.6%	72.1%	77.4%
(B) Social Science and Arts Colleges																									
registration	1502	2026	3381	5248	7690	3953	3737	3022	1805	1217	1071	639	432	897	506	391	4313	2429	984	2213	1488	725	1829	980	849
Total %					74.0%	51.4%	48.6%	59.8%	59.7%	40.3%	45.4%	59.7%	40.3%	28.8%	56.4%	43.6%	80.4%	56.3%	22.8%	43.5%	66.1%	35.2%	15.0%	53.6%	46.4%
employment	187	696	820	541	1167	626	541	526	261	265	227	109	118	259	78	181	228	123	105	147	90	57	293	179	114
Total %					47.6%	53.6%	46.4%	34.4%	49.6%	50.4%	13.5%	48.0%	52.0%	14.0%	30.1%	69.9%	20.0%	53.9%	46.1%	7.7%	61.2%	38.8%	9.9%	61.1%	38.9%
% employ/ registered	12%	34%	24%	10%	15.2%	15.8%	14.5%	17.4%	14.5%	21.8%	21.2%	17.1%	27.3%	28.9%	15.4%	46.3%	5.3%	5.1%	10.7%	6.9%	6.4%	7.6%	16.0%	18.3%	13.4%
% unemployed	88%	66%	76%	90%	84.8%	84.2%	85.5%	82.6%	85.5%	78.2%	78.8%	82.9%	72.7%	71.1%	84.6%	53.7%	94.7%	94.9%	89.3%	93.1%	93.6%	92.4%	84.0%	81.7%	86.6%
(C) Higher Institutes (Diploma)																									
registration	808	2132	2090	866	754	242	512	671	227	390	237	78	159	453	213	240	205	128	77	225	129	96	991	475	516
Total %					7.3%	32.1%	67.9%	13.3%	33.8%	58.1%	10.1%	32.9%	67.1%	14.5%	47.0%	53.0%	3.8%	62.4%	37.6%	4.6%	57.3%	42.7%	8.1%	47.9%	52.1%
employment	208	141	326	220	65	33	32	53	31	22	144	63	81	34	9	25	44	21	23	26	9	17	0.00%	0.00%	0.00%
Total %					2.6%	50.8%	49.2%	3.5%	58.5%	41.5%	8.6%	43.8%	56.3%	1.8%	26.5%	73.5%	3.9%	47.7%	52.3%	1.4%	34.6%	65.4%	0.0%	0.00%	0.00%
% employ/ registered	26%	07%	16%	25%	8.6%	13.6%	6.3%	7.9%	13.7%	5.6%	60.8%	80.8%	50.9%	7.5%	4.2%	10.4%	21.5%	16.4%	29.9%	11.6%	7.0%	17.7%	0.0%	0.0%	0.0%
% unemployed	74%	93%	84%	75%	91.4%	86.4%	93.8%	92.1%	86.3%	94.4%	39.2%	19.2%	49.1%	92.5%	95.8%	89.6%	78.5%	83.6%	70.1%	88.4%	93.0%	82.3%	100%	100.0%	100.0%
(D) Expertise (Employment)																									
employment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	493	172	267	181	112	69	192	89	103	na	na	na	140	35	105
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	29.3%	34.9%	54.2%	9.8%	61.9%	38.1%	16.8%	46.4%	53.7%	na	na	na	4.7%	25.0%	75.0%
(H) The Secondary Graduates (Employment)																									
employment	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	na	na	na	141	60	81
Total %	0.0%	0.0%	0.0%	0.0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	na	na	na	4.8%	42.6%	57.5%
Total all																									
Total Registration	4571	8320	9334	7435	10385	5215	5170	5054	2612	2442	2357	1156	1201	3116	1598	1518	5365	3359	1970	4903	2830	2073	12193	6516	5677
% in total					100%	50.2%	49.8%	100%	51.7%	48.3%	100%	49.0%	51.0%	100%	51.3%	48.7%	100%	62.6%	36.7%	100%	57.8%	42.2%	100%	53.4%	46.6%
Total Employment	1218	1460	2096	1448	2454	1244	1210	1527	657	870	1684	705	797	1844	791	1053	1141	507	634	1709	827	882	2959	1684	1275
Total (%)					100%	50.7%	49.3%	100%	43.0%	57.0%	100%	41.9%	47.3%	100%	42.9%	57.1%	100%	44.4%	55.6%	100%	47.6%	52.4%	100%	56.9%	43.1%
% employ/ registered	27%	18%	22%	19%	23.6%	23.9%	23.4%	30.2%	25.2%	35.6%	71.4%	61.0%	66.4%	59.2%	49.5%	69.4%	21.3%	15.1%	32.2%	38.8%	31.9%	48.1%	24.3%	25.8%	22.5%
% unemployed	0.73	0.82	0.78	0.81	76.4%	76.1%	76.6%	69.8%	74.8%	64.4%	28.6%	39.0%	33.6%	40.8%	50.5%	30.6%	78.7%	84.9%	67.8%	61.2%	68.1%	51.9%	75.7%	74.2%	77.5%

Source: Adapted from the federal public service recruitment board- Statistics and Research Administration.

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